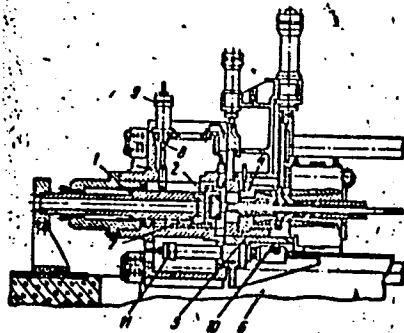


ACC NR: AP6021765

is made in the form of a lever which interacts with the die assembly and is driven by the power cylinder mounted on the frame.



1-upsetting cylinder; 2-removable punch; 3-front cross member; 4-removable die assembly; 5-die; 6-frame; 7-lock; 8-rod; 9-power cylinder; 10-lever; 11-power cylinder

SUB CODE: 13/ SUBM DATE: 06Mar65

Card 2/2

S/152/60/000/005/002/002
B001/B054

AUTHORS: Chernozhukov, I. I., Kazakova, L. P., and Shchegrova, K. A.
TITLE: Methods of Chromatographic Partition of Naphthenes From
Aromatic Hydrocarbons of Oily Petroleum Fractions
PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy. Neft' i gaz, Vol.
1960, No. 5, pp. 93-100


TEXT: To determine more precisely the hitherto used methods of chromatographic partition of the above hydrocarbons (dealt with by the authors already earlier (Table 1)), the authors attempted, in the present investigation, to choose an adsorbing agent which, on the one hand, separates sufficiently the paraffin naphthene hydrocarbons from the aromatic ones and, on the other hand, has a maximum capability of fractionating aromatic hydrocarbons according to their structure. The following mixtures were subjected to chromatographic partition: Decalin and α -methyl naphthalene (Table 2); isopropyl benzene and α -methyl naphthalene 60% : 40% (Tables 3 and 4); dibenzyl and α -methyl naphthalene

Card 1/4

Methods of Chromatographic Partition of
Naphthenes From Aromatic Hydrocarbons of
Oily Petroleum Fractions

S/152/60/000/005/002/002
B001/B054

50% : 50% (Table 5); isopropyl benzene and α -methyl naphthalene 60% : 40% (Table 6). The authors started with separating the paraffin naphthene fraction from the aromatic one. The following products were used as adsorbing agents: 1) Silica gel of the ASK type, 2) activated aluminum oxide (A), 3) aluminosilicate catalyst, 4) mixture of silica gel ASK and activated Al_2O_3 (A). Table 2 shows that the mixture of silica gel and activated Al_2O_3 proved to be the most efficient adsorbing agent for separating naphthene hydrocarbons from aromatic ones, on the basis of experiments made with separated hydrocarbons. Table 3 shows that in the chromatographic partition of aromatic hydrocarbons activated carbon can be used at the ratio indicated there. Table 4 shows that no partition took place at a ratio of 1:5 between initial hydrocarbons and adsorbent (mixture of silica gel ASK and activated Al_2O_3). Table 5 shows that in the chromatography of aromatic hydrocarbons it is possible to use a mixture of silica gel and activated Al_2O_3 (ratio 1 : 10); the partition was, however, not sufficiently distinct. Table 6 shows that a partition did not take place at the ratio of 1:5 between initial hydrocarbons and



Card 2/4

Methods of Chromatographic Partition of
Naphthenes From Aromatic Hydrocarbons of
Oily Petroleum Fractions

S/152/60/000/005/002/002
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activated Al_2O_3 , in contrast to the ratios 1:10 and 1:15. Thus, the experiments of chromatographic partition of aromatic hydrocarbons showed once again that activated Al_2O_3 and activated carbon have the best selectivity with respect to aromatic hydrocarbons of different structures. Further, the authors separated aromatic hydrocarbons of the heavy desulfurized distillate of Shkapovskaya petroleum by activated Al_2O_3 , and obtained three fractions of aromatic hydrocarbons (Table 7). To obtain more accurate data on the structure of products, they determined to what extent the absence of the missing hydrogen portion is caused by the presence of naphthene rings, or by that of aromatic rings. Therefore, they hydrogenated the fractions to be examined (Table 8). The data of Table 8 show that after hydrogenation the number of carbon atoms in these fractions was unchanged, while the hydrogen amount had increased. On the basis of the investigations, it is concluded that paraffin naphthene hydrocarbons are most perfectly separated from aromatic ones by means of a mixture of silica gel ASK and activated Al_2O_3 , and that aromatic hydrocarbons are most accurately fractionated according to their

Card 3/4

Methods of Chromatographic Partition of
Naphthenes From Aromatic Hydrocarbons of
Oily Petroleum Fractions

S/152/60/000/005/002/002
B001/B054

structure by means of activated Al_2O_3 . There are 8 tables.

ASSOCIATION: Moskovskiy institut neftekhimicheskoy i gazovoy
promyshlennosti im. akademika I. M. Gubkina (Moscow
Institute of the Petrochemical and Gas Industry imeni
Academician I. M. Gubkin)

SUBMITTED: June 9, 1959

Card 4/4

CHERNOZHUKOV, K. N.,

"The Development of Agricultural Production and the Utilization of Tropic Resources in South China."

paper presented at the 4th Conference of Young Scientists of the Institute of Geography of the USSR Academy of Sciences, 1957 (Izv. AN SSSR, Ser Geog, 1958, No. 2, p 151-53, GORBUNOVA, M. N.)

ZOZULYA, V.N.; KOZUBOV, A.S.; LOSKUTOVA, R.F.; CHERNOZHUKOV, K.N.;
YAROSHENKO, F.D.. Prinsipal uchastnye: SITNYUK, S.N.. KOLOKOLOV,
V.S., prof., red.

[Chinese-Russian dictionary of scientific and technical terms]
Kitsaiko-russkii slovar' nauchnykh i tekhnicheskikh terminov.
32000 terminov. Pod red. V.S.Kolokolova. Moskva, In-t nauchn.
informatsii Akad.nauk SSSR, 1959. 568 p. (MIRA 13:2)
(Chinese language--Dictionaries--Russian)
(Science--Dictionaries)
(Technology--Dictionaries)

SOV/10-59-5-16/25

AUTHOR: Leont'yev, N.F. and Chernozhukov, K.N.
TITLE: Geographical Atlases of Red China
PERIODICAL: Izvestiya Akademii nauk SSSR, Seriya geograficheskaya,
1959, Nr 5, pp 104-108 (USSR)
ABSTRACT: This is a review of geographical atlases published in
Red China. The last published World Atlas is based on
information furnished by various Soviet atlases.
ASSOCIATION: Institut geografii AN SSSR (Institute of Geography
of the AS USSR)

Card 1/1

LYAN ZHEN'-TSAY [Liang, Jen-ts'ai]; KHUAN MYAN' [Huang, Mien];
SHEN' VEY-CHEN [Wei-ch'eng]; GAVRILOV, V.G.[translator];
KOTOV, A.V.[translator]; KOTOVA, A.F.[translator];
SUN' TSZIN-CHZHI [Sun Ching-chih], red.; CHERNOZHUKOV, K.N.,
red.; MIKHAYLOV, A.F., red.; BELEVA, M.A., tekhn.red.

[Southern China] Iuzhnyi Kitai. Otvet. red. Sun, Ching-chih.
Moskva, Izd-vo inostr. lit-ry, 1962. 389 p. (MIRA 15:8)
(China, Southern—Economic geography)

| 1st AND 2nd GROUPS | | | | | | | | | | | | | | | | | | | | | | | | | | 3rd AND 4th GROUPS | | | | | | | | | | | | | | | | | | | | | | | | | |
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| PROCESSING AND PROPERTIES INDEX | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <p>10</p> <p>Petroleum asphalts and resins and the problem of the refining of petroleum products. N. I. CHERNOSHIKOV. <i>Report of the Refinery Section Meeting in Baku in 1929 of the Council of the Petroleum Industry. Issue 2.</i>—Refining petroleum and utilization of waste products. Soyuzneft-Neftyanoye Izdatelstvo, Moscow-Petrograd 1930, pp. 20-65.—Asphaltenes and resins are formed from S compounds present in petroleum. These S compounds were converted into asphaltenes and carbitens by oxidizing the petroleum with air or O at various temps at atm. pressure and at 15 atm. pressure. The conversion was not quantitative. White oils free from S were treated with S and oxidized, yielding synthetic asphaltenes of a lower mol. wt. but with the same properties as the natural asphaltenes. An oil stable against oxidation and of a very high lubricating value was obtained from a distillate which was treated with air at 10 atm. pressure at 200°. The oxidized oil was distilled and the distillate treated with caustic soda. The asphaltenes and acids remained in the residue. A distinction is made between useful resins, i. e., those that stabilize the oil and improve its lubricating value, and others which make it unstable. The resins are present to some extent in the residual oils which, after the removal of the harmful resins, should be added to the distillate. The Conradson carbon test, the color of the oil and the excise resin test are not indicative of the behavior of the oil in internal-combustion engines. A. A. BORUTLINOX</p> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <p>22</p> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <p>ASPH-51A METALLURGICAL LITERATURE CLASSIFICATION</p> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <p>REGION 17-20-21-22</p> | | | | | | | | | | | | | | | | | | | | | | | | | | <p>REGION 20-21-22</p> | | | | | | | | | | | | | | | | | | | | | | | | | |
| <p>REGION 20-21-22</p> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

| 1ST AND 2ND ORDERS | | | | | | | | | | | | | | | | | | | | | | | | | | 3RD AND 4TH ORDERS | | | | | | | | | | | | | | | | | | | | | | | | | |
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| PROCESSES AND PROPERTIES INDEX | | | | | | | | | | | | | | | | | | | | | | | | | | MATERIALS INDEX | | | | | | | | | | | | | | | | | | | | | | | | | |
| <p>10</p> <p>22</p> <p>Comparison of various bleaching clays. N. I. CHERNOMIRSKY. Repts. Lab. (nd Comm. (U. S. S. R.) 1, 193-215(1930).—The action of a great no. of Russian and foreign clays on various petroleum products was studied and comparative data are tabulated. Conclusion: The Russian clay "Kruimil" mined in the Crimea is more efficient than all other bleaching clays. A. A. BORHTLINGK</p> <p>ASB-SLA METALLURGICAL LITERATURE CLASSIFICATION</p> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

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22

Viscosity of fuel oils. N. I. CHERNOMIRNOV AND A. M. LUTCHAY. *Zhurnal Tekhn. Fiz.* (Trans. *Thermo-Tech. Inst. Russia*) 1930, No. 2, 36-40. The viscosity of paraffinic fuel oil is influenced by the nature of the heat treatment applied before congealing and is not influenced by a new heat treatment carried out on congealed fuel oil. To eliminate the effects of previous treatments of the fuel oil, heating to 100° should precede the cold test.

A. A. BORTLINGER

ASS. SLA METALLURGICAL LITERATURE CLASSIFICATION

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| A | B | C | D | E | F | G | H | I | J | K | L | M | N | O | P | Q | R | S | T | U | V | W | X | Y | Z | AA | AB | AC | AD | AE | AF | AG | AH | AI | AJ | AK | AL | AM | AN | AO | AP | AQ | AR | AS | AT | AU | AV | AW | AX | AY | AZ |
| 1ST AND 2ND ORDERS | | | | | | | | | | | | | | | | | | | | | | | | | | 1ST AND 2ND ORDERS | | | | | | | | | | | | | | | | | | | | | | | | | |
| PROCESS AND PROPERTIES | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <div style="position: absolute; top: 10px; left: 10px; font-size: 2em;">CH</div> <div style="position: absolute; top: 10px; right: 10px; font-size: 2em;">22</div> <p>Determining the congealing point of fuel oil. N. I. CHERNOSHUKOV AND A. M. GUTSAYT. <i>Izvestiya Teploelek. Inst. (Trans. Thermo-Elec. Inst. Russia)</i> 1930, No. 3, 35-5. - Put the fuel oil into a 200-cc. flask (about half full) provided with a thermometer, stir the oil at a rate of 80-100 revolutions per min. on a water bath which is 3-5° cooler than the congealing temp. of the fuel oil. When the oil reaches the bath temp. transfer it to a test tube provided with a thermometer which has been brought to the bath temp. Insert the test tube in a second tube, and place the assembly in a cooling bath, the temp. of which is kept 5° below that of the fuel oil. The congealing point is found by tilting the test tube at an angle of 45° at each degree.</p> <p style="text-align: right;">A. A. HORNBLANCK</p> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <div style="position: absolute; top: 10px; left: 10px; transform: rotate(-90deg); font-size: 0.8em;">(Change Element)</div> <div style="position: absolute; top: 10px; right: 10px; transform: rotate(-90deg); font-size: 0.8em;">1125 - 10000000</div> <div style="position: absolute; top: 10px; left: 10px; transform: rotate(-90deg); font-size: 0.8em;">OPEN WATER-4.5 INCH</div> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <div style="position: absolute; top: 10px; left: 10px; font-size: 0.8em;"> ASSN. SLA METALLURGICAL LITERATURE CLASSIFICATION SECTION: 1111111111 SUBSECTION: 1111111111 </div> <div style="position: absolute; top: 10px; right: 10px; font-size: 0.8em;"> 1125 - 10000000 1125 - 10000000 </div> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| A | B | C | D | E | F | G | H | I | J | K | L | M | N | O | P | Q | R | S | T | U | V | W | X | Y | Z | AA | AB | AC | AD | AE | AF | AG | AH | AI | AJ | AK | AL | AM | AN | AO | AP | AQ | AR | AS | AT | AU | AV | AW | AX | AY | AZ |

ca

Mining fuel oils. N. I. CHERNOZHUKOV AND A. M. GUTSIT. *Investiya Teplo-*
Tekhn. Inst. (Trans. Thermo-Tech. Inst. Russia) 1930, No. 4, 64-9.—Fuel oil mixts. com-
posed of oils with different coagulating points can be homogenized by heating with open
steam and simultaneously agitating with cold air. The air can be admitted through
the water-discharge line in the storage tank.
A. A. BOERTLINGER

ABSTRACT OF THE PROCEEDINGS OF THE AMERICAN SOCIETY OF MECHANICAL ENGINEERS
PUBLISHED BY THE AMERICAN SOCIETY OF MECHANICAL ENGINEERS
NEW YORK, N. Y.

| STABILITY AND PROPERTIES TESTS | | | | | | | | | | | | | | | | | | | | | | | | | |
|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|
| <p>Stability of turbine oils. N. Chukhromukov. <i>Azerbaidzhan'skoe Neftyanoe Khozaystvo</i> 1930, No. 7-8, (81-9). Turbine oils form 3 types of sludges when in use: (1) Asphaltic sludge due to oxidation and polymerization of some S compounds which remain in the refined oil (incomplete removal of high mol. wt. S compounds by the acid or incomplete sepn. of H_2SO_4 from the oil in the treating process). (2) Acidic sludge due to oxidation and polymerization of polynaphthenes and hydronaphthenes (incomplete removal of unsatd. polynaphthenes or overtreatment with H_2SO_4, which results in complete removal of antioxidants from the oil). (3) Sludge due to formation of Fe and Cu salts of org. acids produced by oxidation of the oil in the presence of water (leakage of water into the lubricating system). Stability of turbine oils is best detd. by Butkov's method (4 hrs. at 150° and 15 atm. O_2 pressure), which correlates very satisfactorily with plant data and is similar but superior to the German method (70 hrs. at 120° in the atm. of O_2) in that it gives more concordant results. A good turbine oil after being subjected to Butkov's test must require not over 1 mg. of KOH to neutralize 1 g. of oil and should contain not over 0.15% of sediment, by wt. V. K.</p> | | | | | | | | | | | | | | | | | | | | | | | | | |
| <p>ASH-SLA METALLURGICAL LITERATURE CLASSIFICATION</p> | | | | | | | | | | | | | | | | | | | | | | | | | |

A microfiche card is shown, oriented vertically. The card has a header section at the top with a grid of numbers 1 through 24. Below the header is a large rectangular area containing text. The text is in Russian and English, discussing the treatment of oil with fuller's earth. To the left of the text area, there is a vertical column of numbers 1 through 24. To the right of the text area, there is a vertical column of numbers 1 through 24. At the bottom of the card, there is a table with columns for classification. The table has several rows and columns, with some cells containing numbers and others containing text. The card is made of a material with a grid of small holes, typical of microfiche.

| 1ST AND 2ND COVERS | | | | | | | | | | PROCESSING AND PROPERTIES INDEX | | | | | | | | | | 3RD AND 4TH COVERS | | | | | | | | | |
|---|--|--|--|--|--|--|--|--|--|---------------------------------|--|--|--|--|--|--|--|--|--|--------------------|--|--|--|--|--|--|--|--|--|
| <p>ca</p> <p>Conditions under which explosive mixtures of petroleum vapors and air are formed. N. I. CHERNOMUKOV AND A. M. GUTZAIT. <i>Investiya Teploekhnicheskogo Instituta</i> (Trans. Thermo-Technical Inst. Russia) 1931, No. 8, 34-9.—The explosibility of hydrocarbon-air mists. was measured in a 7 l. cylinder charged with 500 cc. oil, the latter being heated by an elec. heater and the vapor ignition effected with an electrically heated Pt spiral inserted in the vapor space. Based on expts. with various fuel oils the following</p> <p>conclusions are drawn: Petroleum products have 2 flash points, one the normal or the Martens-Pensky and the other a lower flash point. This lower flash point is observed when cooling the heated product or when the reservoir is sufficiently charged with the oil. The flash decreases when the amt. of oil charged is increased. The flash point is lower, not over 20°, in comparison with standard testing methods. The flash-point detn. in the Brenken cup is not sufficiently indicative for hazards arising with petroleum products stored in closed containers. An app. is proposed for the detn. of the lower flash point.</p> <p>A. A. HORNTLINGER</p> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <p>COMMON ELEMENTS</p> <p>OPEN</p> <p>MATERIALS INDEX</p> <p>ASB-SLA METALLURGICAL LITERATURE CLASSIFICATION</p> <p>EXON: STIVBZIV</p> <p>EXON: BOWING</p> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| SECONDARY | | | | | | | | | | SECONDARY | | | | | | | | | | SECONDARY | | | | | | | | | |
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| 1ST AND 2ND ORDERS | | | | | | | | | | | | | | | | | | | | | | | | | | 3RD AND 4TH ORDERS | | | | | | | | | | | | | | | | | | | | | | | | | |
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| PROCESSES AND PROPERTIES INDEX | | | | | | | | | | | | | | | | | | | | | | | | | | MATERIALS INDEX | | | | | | | | | | | | | | | | | | | | | | | | | |
| <p><i>Investigating acid sludge. N. I. CHERNOZHUKOV AND V. K. ZUKOV. Izv. Teplokh. Inst. 1932, 009-12. Acid sludge stored for a long time in the Konstantin. skii and the "20 Kommunarov" refineries was investigated. The upper layer contains about 5.10%, the middle 3.40% and the bottom layer 12.10% of H_2SO_4. The ash content was 0.28, 0.33 and 0.71%; mech. admixts. 0.30, 0.00 and 1.30%. H_2O 10, 10.4 and 13.0%; S 3.61, 2.45 and 2.10%. calorific value 0420, 5501 and 5073 calories, resp. Mixts. of the acid sludge with various fuel oils in different proportions were tried. It was found that a mixt. contg. 1 part of acid sludge and 2 parts of fuel oil can be used as fuel provided the temp. is kept at 70-80° and the mixt. is kept under agitation.</i></p> <p style="text-align: right;">A. A. BORSHTEIN</p> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <p>ASH-SLA METALLURGICAL LITERATURE CLASSIFICATION</p> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

| 1ST AND 2ND CODES | | | | | | | | | | | | | | | | | | | | | | | | | | 3RD AND 4TH CODES | | | | | | | | | | | | | | | | | | | | | | | | | |
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| COMMON ELEMENTS | | | | | | | | | | | | | | | | | | | | | | | | | | EXTRA ELEMENTS | | | | | | | | | | | | | | | | | | | | | | | | | |
| <p>Preparation of lubricating oils from sapropelite low-temperature carbonization tar. N. I. Chernozhukov, A. M. Gutsait and B. V. Losikov. <i>Khim. Tverdogo Topliva</i> 3, 690-700(1932).—For the prepn. of lubricating oils, a stripped low-temp. carbonization sapropelite tar of the following properties was used: sp. gr. 1.0314, Brecken flash 189°. Δ_{vis} viscosity 0.40 and pour point 18°. It was composed of: phenols 3.81, bases 0.80, acids 2.46, asphaltenes 16.10, carboids and carbones 5.15, fuller's earth tars 28.30, neutral oils 41.30 and paraffin 2.0%. This fuel oil was treated in 2 ways: (1) it was freed preliminarily from carbones (and carboids), some of the asphaltenes, phenols, acids and bases, and then steam-distd.; and (2) it was directly steam-distd. Oils of about the same qualities were obtained by methods (1) and (2). However, the residue of the unrefined stripped oil, unlike that of the refined, was a friable pitch of 61 m. p. and not an asphalt. In the Edelmann refining of the distillates (described in detail), with a treating temp. of 0° and 450% (by vol.) of SO_2, the total losses including an additional H_2SO_4 and clay treatment were 40%, and the final products were satisfactory. A. A. B.</p> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <p>ASH-SLA METALLURGICAL LITERATURE CLASSIFICATION</p> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

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|--|--|--------------------------------|--|---------------------|--|
| <p>22</p> <p>Oxidation of hydrocarbons from the lubricating oil fractions of crude oil. I. N. I. Chernomukhov and N. R. Kri-ii. <i>Neftekhim. Akademiya</i> 24, 212-50 (1962). The oxidation was carried out in a Butkov autoclave (cf. C. A. 22, 2458) at 15 atm. pressure, with O or air. Acids, oxyacids and phenols were sepd. in the usual way. The part which did not react and condensation products, e. g., resins, were sepd. by extrn. with petroleum ether in the presence of fuller's earth, the resins being held by fuller's earth. They were removed by a mixt. of KOH and CaH₂ (1:4). Hydrocarbons were oxidized for 3 hrs. at 150° with O and for 8 hrs. with air. The following compds. were treated: naphthalene, anthracene, phenanthrene, biphenyl, triphenylmethane, diphenylmethane, 1,3,5-trimethylbenzene, propylbenzene, nonylbenzene, decylbenzene, p-methylisopropylbenzene, α-methylisopropylbenzene, α-methylnaphthalene, β-methylnaphthalene, 1,8-dimethylnaphthalene, propylnaphthalene, acenaphthene. Conclusions: Simple cyclic compounds are but little affected, naphthalene and biphenyl being the most stable. Connecting chains weaken the stability of the mol. Unsym. mols. or mols. contg. a trivalent C atom are attacked readily. Condensation processes (formation of resins) prevail over reactions giving acidic products. The basic mass of the products consists of esters, lactones and anhydrides. The oxidation, which affects the side chains, increases with increase in the no. or the length of the side chains. Simple aromatic hydrocarbons or those with short chains produce mainly resins. The amt. of condensation products decreases and that of acidic products increases with increase in the length of side chains. The aromatic compds. from Grozny mixed-base crude oil yield high amts. of resins and low amts. of oxidation products in comparison with the aromatic compds. from Baku gas oil. The aromatic compds. from Grozny asphalt-base oil occupy an intermediate position. II. <i>Ibid.</i> 285-90.—The oxidation of naphthalene was undertaken with individual hydrocarbons such as decalin, cyclohexane and methylcyclohexane as well as with narrow naphthalene cuts sepd. from Simba-Dossor, Balakhanui, Grozny asphalt-base and Bibi-Hibat crude oils. Fuel oil from the crude oils was vacuum-distd. into fractions b. 300-50°, 350-400°, 400-50°, 450-500° and 500-50°. The aromatic compds. were removed with 97-99% H₂SO₄, although this removal was incomplete and some of the naphthalenes were attacked. The fractions with a high pour</p> | | <p>22</p> | | | |
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| <p>CA</p> <p>Oxidation of the hydrocarbons of lubricating oil extracted from crude oil. N. I. Chernozhukov and S. E. Krein (Crane). <i>Foreign Petroleum Technology</i> 1, 121-34(1983); 2, 21-38, 39-80(1984).—See C. A. 27, 5178; 28, 6217. A. A. Bochtlingk</p> | | | | | | | | | | | | | | | | | | | | | | | | | | <p>22</p> | | | | | | | | | | | | | | | | | | | | | | | | | |
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| <p>co 22</p> <p>Influence of refining on the oxidizability and the oiliness of lubricating oils. N. J. Chernozubov and A. M. Gutzait. <i>Repts. Lubricating Oil Comm. U. S. S. R.</i> 3, 1-23(1933).—The following oils were investigated: light spindle oils, machine oil distillates and bottoms from Baku and Emba crude oils. The oxidizability was tested by the Butkov method (C. A. 23, 907) and the oiliness by the Dallwitz-Wegener method (C. A. 20, 3076). The fuller's earth treatment was effected by shaking the oil heated to 50° with fuller's earth for 30 min. The oil was then filtered and its sp. gr., color, acidity, wetting power and oxidizability were detd. The oiliness of the Emba spindle-oil distillate shows a continuous increase with treatment, the max. being reached with 15% of fuller's earth; the corresponding Baku distillate loses its oiliness when large amts. of fuller's earth are used. The oiliness has no relation to the acid content. The color of Emba distillate improves in direct proportion to the amt. of fuller's earth used, while that of Baku is expressed by a curve. All these oils have an unstable color on prolonged standing</p> <p>in the light. The acidity of the Emba distillate improves in direct proportion to the amt. of fuller's earth used, while the acidity of treated Baku distillate is presented by a curve. Treatment of Baku distillate with 5% of fuller's earth yields a stable oil (with no sediment), while 30-40% of fuller's earth is needed to stabilize (remove resins from) Emba distillate. This difference is explained by the formation of asphaltic products on oxidizing Emba oil, while only hydroxy acids are formed from Baku oil. Baku spindle oil distillate, after treatment with fuller's earth at 150°, lost its stability to oxidation and color, while Emba distillate yielded a stable oil after treatment with only 5% of fuller's earth.</p> <p>A. A. Boehlingk</p> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| CO | | <p>The oxidizability, oiliness and surface tension of lubricating oils. N. I. Chernoshukov. <i>Repts. Lubricating Oil Comm. U. S. S. R.</i> 3, 23-8(1933).—This report covers Russian and foreign oils. The wetting power was detd. by the Dallwitz-Wegener method. The machine oils were oxidized by the Butkov method at 150° and 15 atm. of O₂ (4 hrs.). The "avtola" and cylinder oils were oxidized in the Butkov app. for 3 hrs. at 250° and</p> | | 72 | |
| | | <p>15 atm. of air. The surface tension against air was detd. by capillary rise at 20° and 100°. In the comparison of foreign with Russian oils, samples of identical viscosities were taken. It was found that the foreign samples of the type of pale machine oils yield small amts. of a ppt. and have a low acidity after oxidation. The corresponding Russian oils are inferior in this respect. The foreign test oils are characterized by a high percentage of residue and a considerable amt. of acidity after oxidation. The automobile oils vary widely. The cylinder oils are characterized by a low amt. of sediment after oxidation, which is also true for Russian oils. The bright stocks behave differently on oxidation, the bright stock obtained from the Persian oil being particularly unsatisfactory. The surface tension at 100° is almost alike for all oils. The wetting power of the majority of foreign oils is slightly higher than that of the Russian oils. A. A. Bochtlingk</p> | | | |
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1ST AND 2ND GROUPS
3RD AND 4TH GROUPS

COMMON ELEMENTS

PROCESS AND PROPERTIES INDEX

22

COMMON VARIABLE MOLES

CA

The evaluation of automobile lubricating oils from the point of view of formation of carbon deposits. N. I. Chernozhukov. — *Nefyanos Khosyaistvo* 24, 234-40 (1933).

Fresh lubricating oils were tested for sp. gr., flash, F_{50} and F_{100} viscosities, acidity, sulfonates, Conradson C, ash, NPA color, Sly, and Grouny and Butkov oxidizability, including the acid and residue detn. as a result of oxidation, and distn. test (at 2 mm. Hg) in a stream of CO_2 . The spent oil was tested in the above manner except for its oxidizability. The engine tests were run on a 6-cylinder AMO-2 (Hercules type) motor of 60 h. p. and a single-cylinder motor 1-3 of 3 h. p., which were run for 60 hrs. It was found that acidity causes an increased amt. of Fe in the C deposit. An increased content of a fraction b. below 225° (2 mm.) causes an increase in the C deposit; this behavior depends also on the type of refining. An increase of the acidity after oxidation (by 1 of the 3 methods specified) shows an increased acidity in the spent oil in the crank case. The amt. of burned oil does not depend on the b. p. of the oil but evidently on the vaporization of fractions. The Conradson C test is not a criterion on the behavior of the oil in the engine. Residual oils form a hard C deposit. The oils must be properly acid treated and washed with alkali. The stability of oil may be tested by the Sly method. An oil should not give more than 0.3% residue and its acidity should not exceed 0.8 mg. KOH. The exptl. procedure is described and the results of tests are tabulated and plotted. A. A. B.

INTERNAL MOLE

ASB-SLA METALLURGICAL LITERATURE CLASSIFICATION

COMMON VARIABLE MOLES

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| 1ST AND 2ND ORDERS | | PROCESSES AND PROPERTIES INDEX | |
|---|--|--|--|
| <p>Oxidation of hydrocarbons from the lubricating oil fractions of crude oil. III. N. I. Chernozhukov and S. B. Krain (Crane). <i>Neftevaia Khimiya</i> 23, 35-A, 102-6 (1933); C. A. 27, 5178. Oxidation of synthetic mixts. of naphthene hydrocarbons and aromatic hydrocarbons. A pure medicinal white oil having an acidity of 0%, av. mol. wt. of 397, η_{sp} of 0.8600, R_v viscosity of 4.23, η_{sp} = 1.4280 and 3 (lamp method) 0%, was oxidized by the Bafkov method with O_2 at 18 atm. and 160° and for 3 hrs. in the presence of the following aromatic hydrocarbons: (1) Individual aromatic hydrocarbons: (a) without side chains (naphthalene, anthracene, phenanthrene); (b) with side chains (α-methylnaphthalene, propylbenzene, decylbenzene); (c) aromatic hydrocarbons with rings connected through an intermediate C atom (diphenylmethane, triphenylmethane, acenaphthene); (d) aromatic hydrocarbons sep. from various fractions of petroleum lubricating oils; (2) O-contg. compds.; (3) petroleum lubricating oils; (4) resins; (a) sep. from natural products; (b) obtained as a result of oxidation of various hydrocarbons of the naphthene as well as of the aromatic series; (5) N-contg. compds.; (a) amines (aniline, β-naphthylamine); (b) heterocyclic compds. (pyridine, quinoline). From 0.1 to 10% of the above compds.</p> | | <p>were introduced. The expts. are described in detail and the following conclusions are made. (1) The oxidation of naphthene hydrocarbons is lowered in the ability of aromatic compds. without side chains whereby presence of aromatic compds. in the course of oxidation. (2) The latter are consumed in the course of oxidation. (3) The lowering of the oxidizability of the naphthenes does not increase in direct proportion to the concn. of the aromatic compds. The presence of more than 5% of aromatic compds. is of no practical effect. (4) Aromatic hydrocarbons without side chains when present in soln. in naphthenes act in the presence of O_2 quite differently than if present as individuals. Naphthenes induce the oxidation of aromatic compds. (4) In a mixt. with naphthenes the aromatic compds. are oxidized more rapidly than the naphthene hydrocarbons. (5) The antioxidant effect of aromatic compds. increases with increase in the no. of rings. (6) Aromatic compds. contg. a trivalent C are very effective antioxidants. (7) Hydrocarbons of the acenaphthene and diphenylmethane type are less effective. (8) Aromatic compds. having long (satd.) side chains of normal structure and in low concns. practically do not improve the antioxidizing properties of naphthenes, and even increase the tendency of naphthenes to oxidize. (9) The products of oxidation of aromatic hydrocarbons are of the type of phenols and condensation products which are more active as antioxidants and thus retard the process of oxidation. A. A. Bochtlung</p> | |
| <p>ASS-SLA METALLURGICAL LITERATURE CLASSIFICATION</p> | | <p>FROM SOURCE</p> | |
| <p>SECONDARY SOURCE</p> | | <p>RELATION</p> | |

| PROCESS AND PROPERTIES INDEX | |
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| CO | <p>Preparation of lubricating oils from Zhurinskii primary N. I. Chernozhukov, A. M. Gutzait and B. V. Lukov. <i>Khim. Tverdogo Topliva</i> 3, 70-4(1934). The compns. of the Zhurinskii tar, stripped oil and oils obtained by steam distn. are given. Laboratory expts. proved that the topped oil is unsuitable for prep. lubri- cating-oil fractions because of low yields and instability of the products. A. A. Hochlingk</p> |
| <p>ASB-SLA METALLURGICAL LITERATURE CLASSIFICATION</p> | |

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Refining light products from the low-temperature car-
 bonization of coal. N. I. Chernozhukov, L. S. Dyuba-
 kova and G. V. Medvedev. *Khim. Tverda Topliva* 5,
 1410-61 (1934).—Gasoline distillates from sapropel and
 humic tars can be refined successfully by the usual methods
 for cracked petroleum gasolines. The gasolines with a
 high S content (over 0.2%) need special refining. Care-
 ful rectification is essential in all refining methods ap-
 plied to gasolines from primary tars and to cracked gaso-
 lines contg. small amts. of tars. Kerosene from the
 Barzans and Zoris sapropelites can be refined with H₂SO₄.
 Because of their low content of phenols and bases, re-
 fining losses are not great. Stable light products are
 obtained only on carefully washing the distillate for the
 removal of the phenols and bases; complete removal
 is obtained by consecutive treatment with 10% NaOH,
 20-25% H₂SO₄, and an addnl. treatment with NaOH.
 The kerosene fractions from humic tars suffer great losses
 in H₂SO₄ treatment, mainly in the removal of phenols
 and bases; better results are obtained by treating these
 kerosenes after their oxidation under pressure. They
 must be carefully rectified. A. A. Boettlingk

| 1ST AND 2ND ORDERS | | | | | | | | | | PROCESSES AND PROPERTIES INDEX | | | | | | | | | | 100 AND 4TH ORDERS | | | | | | | | | |
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| <p><i>ca</i></p> <p>The main characteristics of tractor oils. N. I. Chel- morzhukov. <i>Neftyanoe Khozyaistvo</i> 26, No. 3, 16-20 (1954).—The following points are discussed: (a) vis- cosity, (b) resistance to oxidation, (c) influence of the boiling curve of the oil fraction, and (d) low vaporization under working conditions. A. A. Bochtlingk</p> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <p>ASB-5LA METALLURGICAL LITERATURE CLASSIFICATION</p> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| 1ST AND 2ND ORDERS | | | | | | | | | | | | | | | | | | | | | | | | | | 3RD AND 4TH ORDERS | | | | | | | | | | | | | | | | | | | | | | | | | |
| METHODS AND PROPERTIES INDEX | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <p>Methods for the preparation of lubricating oils from crude oils of the Sterlitamak district. N. I. Chernozhukov and B. B. Kroll. <i>Nefteyanov Kharyotiro</i> 26, No. 9, 44-6 (1934).—The Sterlitamak crude oils (Ishimbaev crude oil) yield up to 15-17% of lubricating oils of a fair quality. The best refining method for these oils is fractionation by SO_2, followed by treatment with clay. The dewaxing may be carried out with dichloroethane before the SO_2 treatment. A. A. Hochling</p> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <p>ASME-SLA METALLURGICAL LITERATURE CLASSIFICATION</p> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <p>1ST AND 2ND ORDERS 3RD AND 4TH ORDERS</p> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

Refining oils with selective solvents. N. I. Chernoshukov and Yu. A. Pinkevich. *Azerbaidzhanstoe Neftyanoe Khazaystvo* 1935, No. 1, 78-85.—The asphaltic-aromatic type of crude oils, such as heavy Balakhanui crude oil, gives low yields (25-23%) with a viscosity index of 85, when treated with strong solvents. A weaker solvent gives higher yields but the index is lower. The light Bibi-Eibat crude oil yields 40-60% of a satisfactory oil when treated with PhNO_2 and 60-5% with "chlorox." It is impossible to produce good oils with an index of 80 and higher from these crude oils. Thus, the treatment with selective solvents depends upon the quality of the crude oils to be treated. Oils of the type of the light Bibi-Eibat crude are poorest. A preliminary treatment with small quantities of H_2SO_4 increases the yield of the oil but does not change the index after the treatment. The acidity is lowered and the stability and color are improved.

A. A. Bochtlingk

22

ca

The oxidation of oils. N. I. Chernozhukov and S. H. Krelo. *J. Applied Chem. (U. S. S. R.)* 8, 231-67 (in German 207-8) (1935); Translation in *Foreign Petroleum Tech.* 1, 69-70, 121-34 (1933); 2, 21-38, 39-60 (1934); 4, 1, C. A. 27, 5178; 28, 6218. A lubricating oil consisting of naphthenes and at least 15-20% of aromatic hydrocarbons with paraffin side chains forms no ppt. on oxidation. The acid content increases because the side chains are oxidized. The course of the oxidation is the same as in the absence of naphthenes. In the presence of less than 10% of aromatic hydrocarbons with side chains, the oxidation is the same as that of pure naphthenes. If a naphthene oil contains as much as 5% of hydrogenated aromatic hydrocarbons, a ppt. is formed on oxidation, consisting of hydroxy acids, asphaltenes and carbones. At higher concns. of hydrogenated aromatic hydrocarbons, the ppt. contains chiefly hydroxy acids. Aromatic tarry substances do not affect the oxidation; naphthene-like tar accelerates it. A. A. Bochtlingk

ASB-SLA METALLURGICAL LITERATURE CLASSIFICATION

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| 1ST AND 2ND ORDERS | | | | | | | | | | | | | | | | | | | | | | | | | | PROCESSING AND PROPERTY INDEX | | | | | | | | | | | | | | | | | | | | | | | | | |
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| <p>Investigating the stability of transformer oils in experimental transformers and by means of some of the artificial oxidation methods. N. I. Chernozhukov, M. Ya. Kvarin and N. B. Senfénov. <i>Neftekhimicheskie Khim.</i> 1935, No. 12, 67-75. The expts. were carried out with Kuba, Bibi-Eibat, heavy Balakhanui and Surakhanui transformer oils, in 10 different types of transformers. The following methods for determining the stability of the oils were investigated: (1) Butkov method, (2) Michie method, (3) Sly method, (4) the Russian (OST 800) method, (5) the method of Verein deutscher Ingenieure, and (6) the General Electric Co.'s method. The results of tests are tabulated. All the oils were acceptable according to methods of Sly, V. D. R. and G. E. C., but they were below the Michie specification. The Russian method is too lenient, passing oils with twice the amt. of oxidation products permissible by the other methods. The Butkov method cannot be used in testing transformer oils because it does not permit a reproduction of the conditions existing in transformers. A. A. Bochtlingk</p> | | | | | | | | | | | | | | | | | | | | | | | | | | <p>72</p> | | | | | | | | | | | | | | | | | | | | | | | | | |
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| <p>ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION</p> | | | | | | | | | | | | | | | | | | | | | | | | | | <p>PROPERTY INDEX</p> | | | | | | | | | | | | | | | | | | | | | | | | | |
| <p>PROPERTY INDEX</p> | | | | | | | | | | | | | | | | | | | | | | | | | | <p>PROPERTY INDEX</p> | | | | | | | | | | | | | | | | | | | | | | | | | |

CA

Oxidizing naphthenes in the presence of oxygen, some nitrogen and sulfur compounds. See: *Chetaniyukiy* and S. R. Krein. *Nefteprom Khimiyu* 28, No. 3, 20-24 (1935); *Foreign Petroleum Tech.* 3, 577-94 (1935); 4, (1935). The oxidation was carried out with a 13-32 (1935). The oxidation was carried out with a paraffin oil which was preliminarily freed of all compounds but naphthenes, the following compounds being admitted before the oxidation: mono- and polyaromatic phenols, aldehydes, ketones, quinones, fatty acids, sepiolite, from the oxidized oil, ketones, quinones, fatty acids, sepiolite, from the oxidized oil, resinous products obtained as a result of oxidation of various substances, resinous products, sepiolite, from various distillates of the heavy Batakhani crude oil, pure S, benzyl sulfide, Secont, resins, mono- and polynuclear amines and N-Secont, heterocycles. Acids sol. in petr. ether promote oxidation, while the effect of hydroxy acids is based on their ability to form salts and therefore they must be removed from the oil, although they do not influence the stability of oil. Phenols (1-2%), quinones (1-2%), resins of aromatic origin (up to 3%) are good inhibitors, although they affect the appearance of the oil. Aldehydes, ketones, acids, hydroxy acids and phenol acids lower their stability, which is also true to some extent for alcohols. Resins derived from naphthenes and esters when added in low amounts, have no influence. The oil should receive a Na_2CO_3 and not a NaOH treatment, since the latter removes phenols. Small amounts of pyrogallol should be introduced in oils of unsatisfactory stability. Bases such as pyridine, quinoline and other N heterocycles present in low temp. carboxylation resins, promote sludge formation when added to lubricating oils. Aromatic amines are useful additives. The antioxidant effect of S compounds appears to depend on the amt. of S present in the compounds, being frequently independent of the type of S compound. The expts. are described and the results tabulated and plotted.

A. A. Bochtlingk

| 1ST AND 2ND ORDERS | | PRECEDENCE AND PRIORITY INDEX | |
|--|--|--|--|
| <p>22</p> <p>The structure of aromatic hydrocarbons of lubricating oil fractions. N. I. Chernozhukov. <i>Neftevenne Abo-</i> <i>volino</i> 20, No. 6, 72-8 (1936); <i>Foreign Petroleum Tech.</i> 4, 201 (1936). $C_{10}H_8$, naphthalene and biphenyl sub- stituted with long open chains produce in lubricating oil high viscosity, resistance to the formation of ppts. and stability toward oxidation. Substituents of the derivs. of diphenylmethane, ethane, propane, etc., and probably the tricyclic aromatic hydrocarbons, that have their ben- zene nuclei attached to carbon atoms of paraffinic chains, when present in oils, cause a lowering in the viscosity index and an increase in the gum formation during the oxidation. Oils contg. acyclic derivs. of dicyclic, polym- erized and incompletely hydrogenated aromatic compds. (derivs. of the naphthene-aromatic hydrocarbons) are characterized by an exceedingly low viscosity index, low resistance to oxidation and by a precipitation of gums during the oxidation. The contents of these hydrocarbons may be different in different crude oils, but their concn. in lubricating oil fractions must not be below 20-3%.</p> | | <p>Crude oils characterized by a low content in gums and by high-quality lubricating oils contain aromatic compds. mainly of the first type. Such oils are primarily the Rus- sian Dorens and the paraffinic Surakhanul and Kara- Chukhur crude oils. Paraffinic oils of asphaltic character, such as the Grozny crude oil, contain mainly aromatic compds. of the second type. Finally the heavy crude oils of the type of Balakhanul heavy, Kaluga and Grozny asphalt-base contain aromatic compds. mainly of the third type. Eight references. A. A. Hochlingk</p> | |
| <p>ASB-11A METALLURGICAL LITERATURE CLASSIFICATION</p> | | | |
| <p>FROM DIVISION</p> | | <p>TO DIVISION</p> | |
| <p>1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100</p> | | <p>1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100</p> | |

CHERNOZHUKOV, N. I.

"Oxidizability of 'Mineral Oils'" (Okislyayemost "Mineralnykh Masel"), by
N. I. Chernozhukov and S. E. Kreyn, ONTI, Aznefteizdat (United Scientific
and Technical Publishing Houses), Azerbaydzhan Petroleum Publishing Office,
1936

XI

ca 22

PRECEDENTS AND PROPERTIES INDEX

Quality of oils (their chemical composition, preparation and utilization). N. I. Chernozhukov. *Trudy Perovskogo Nauch.-Tech. Konferentsii po Proizvodstvu i Potrebleniyu Smazochnykh Masel* 1930, 240 str. Ser. C. A. 28, 3045, 45627, 74145. A. A. Podgorniy

ALSO SEE: DETAIL OF THE LITERATURE CLASSIFICATION

CLASSIFICATION

CLASSIFICATION

Technical requirements for automobile lubricating oils
N. I. Chernozhukov and N. V. Gerasimovskii. *Trudy
Petrolii Vsesoyuz. Nauch.-Tekh. Konferentsii po Pri-
rodnyim i Potreblennym Smazochnykh Masel 1936*, 286-302.
It is proposed to divide the lubricating oils into 3 groups
(1) acid-clay treated, (2) acid-alkali treated and (3) oils
pretreated with alkali. The characteristics of (1) are
determ. by the oxidizability (Slight no.), Conradson C content
and color; those of (2) differ from (1) by the absence of
the color standard and a higher viscosity at 50°; and
those of (3) differ from (1) and (2) by the absence of color
and oxidizability standards, higher Conradson C content,
and higher viscosity at 50°. Phys. consts. of oils in rela-
tion to the properties are discussed. A. A. Polgorny

Ca

72

The aging of insulating mineral oils in the presence of different catalysts. N. I. Chernozhukov, M. V. Kurlin and A. M. Kurkina. *J. Applied Chem.* (U. S. S. R.) 9, 690-4 (in German 895) (1934).--Cu, and to a slightly smaller degree Fe, increase the rate of formation of acidity and solid deposits in mineral oil for transformer insulation. Cu catalyzes the formation of acids, which then form hydroxyacids, while Fe catalyzes the formation of phenols.
H. M. Leicester

ASB-SLA METALLURGICAL LITERATURE CLASSIFICATION

| 1ST AND 2ND COVERS | | PROCEDURE AND PROPERTIES INDEX | | 1ST AND 2ND COVERS | |
|---|--|--|--|--------------------|--|
| ca | | <p>Oxidation of heptylbenzene and decahydronaphthalene in the liquid phase. N. I. Chernozhukov and S. E. Krein. <i>J. Applied Chem.</i> (U. S. S. R.) 10: 1435-48 (in French 1440) (1937).—Heptylbenzene (25 g.) or decahydronaphthalene (40 g.) were oxidized by air with a const. stirring with a glass stirrer in a glass beaker placed into a steel autoclave. The temp. of the expts. varied within 78-130° and the pressure of the air was kept const. (10 atm.) in all the expts. The oxidation was stopped by cooling the autoclave and its contents with ice. The oxidation products were analyzed and the data tabulated. The main products of the oxidation of heptylbenzene were acids and tars, and those of decahydronaphthalene were acids, mainly invol. in petr. ether, decahydronaphthaleneasphaltogenic acid, and considerable amts. of neutral products of an excessive oxidation (asphaltenes, carbones and carboids). The temp., and to a lesser degree the time of oxidation, affect the process by promoting an oxidation of the intermediary products of oxidation to the next oxidation stage (acids to HO acids, HO acids to asphaltogenic acids and tars to asphaltenes) without changing the principal scheme of the autoxidation of the above compds. Twenty-one references.</p> <p style="text-align: right;">A. A. Podgorny</p> | | 10 | |
| ASB-31A METALLURGICAL LITERATURE CLASSIFICATION | | | | E2 | |

| 1ST AND 2ND CODES | | | | | | | | | | | | | | | | | | | | | | | | | | 3RD AND 4TH CODES | | | | | | | | | | | | | | | | | | | | | | | | | |
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| <p>CA</p> | | | | | | | | | | | | | | | | | | | | | | | | | | <p>22</p> | | | | | | | | | | | | | | | | | | | | | | | | | |
| <p>New tendencies in the production technology of lubricating oils. N. I. Chernozhukov. <i>Vsesoyuz. Konferents. Treniya i Tsekh. Materialy</i> 1, 384-70(1939); <i>Khim. Referat. Zhur.</i> 1940, No. 8, 102.—The ideal oil must consist of cyclic aromatic and naphthenic hydrocarbons with long aliphatic side chains. The substances added must make the oil stable against oxidation, produce a high octane no. and insure sufficient oiliness. To impart the required properties to the tech. product, C. proposes the use of processes of selective refining, deparaffinization, deasphaltization and addn. of various substances, such as aminophenols, which increase the stability of the oil, esters of Cl-substituted acids, which increase the oiliness, etc.</p> <p>W. R. Henn</p> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <p>ASB-LLA METALLURGICAL LITERATURE CLASSIFICATION</p> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <p>1ST AND 2ND CODES</p> | | | | | | | | | | | | | | | | | | | | | | | | | | <p>3RD AND 4TH CODES</p> | | | | | | | | | | | | | | | | | | | | | | | | | |
| <p>1ST AND 2ND CODES</p> | | | | | | | | | | | | | | | | | | | | | | | | | | <p>3RD AND 4TH CODES</p> | | | | | | | | | | | | | | | | | | | | | | | | | |

| 1ST AND 2ND ORDERS | | | | | | | | | | 3RD AND 4TH ORDERS | | | | | | | | | |
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| PROCESS AND PROPERTIES INDEX | | | | | | | | | | | | | | | | | | | |
| <p>CA</p> <p>22</p> <p>Recovery of sulfonic acids from acid sludge. N. I. Chernoshukov and P. I. Smirnova. Russ. M., 440, March 31, 1941. The acid sludge is extd. with aromatic hydrocarbons or esters, and from the ext. the low-mol. sulfonic acids dissolved out with water. The extn. residue is treated with alkali to recover the high-mol. sulfonic acids.</p> | | | | | | | | | | | | | | | | | | | |
| ASB-5LA METALLURGICAL LITERATURE CLASSIFICATION | | | | | | | | | | | | | | | | | | | |
| MATERIALS | | | | | | | | | | ECONOMY | | | | | | | | | |
| SUBGROUPS | | | | | | | | | | SUBGROUPS | | | | | | | | | |
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Viscosity of mineral oils. N. I. Chernushchikov, *Acad. Nauk S.S.S.R., Otdel. Tekh. Nauk, Inst. Mashinovedeniya, Sovetskoye Vysokoye Zhidkostey i Kolloid. Rasseyaniya (Conf. on Viscosity of Liquids and Colloidal Solns.)* 2, 130-7 (1944). — Conclusions attributing a detg. role in the viscosity of mineral oils to their content in either aromatic or naphthenic hydrocarbons are erroneous. Such conclusions were based on extns. with selective solvents; these are shown to ext. not a definite class of compds. but mainly polycyclic hydrocarbons with short lateral chains which have the highest values of viscosity η and low values of the viscosity index; these hydrocarbons can be either aromatic, naphthenic or aromatic-naphthenic. The η of an oil increases with its content in polycyclic hydrocarbons, the no. of rings being decisive; the length and the no. of lateral chains have a further increasing effect on η , examples: $C_{11}H_{22}$, $C_{11}H_{20}$, $C_{11}H_{18}$, $C_{11}H_{16}$, η = resp., 1.35, 3.4, 5.0°E. at 37.8°C., and 1.05, 1.35, 1.50°E. at 98.8°C.; $C_{11}H_{22}$, $C_{11}H_{20}$, $C_{11}H_{18}$, $C_{11}H_{16}$, η = resp., 1.80, 0.79, 13.2°E. at 37.8°C. and 1.15, 1.82, 2.4°E. at 98.8°C.. Strongest variations of η on lowering the temp. are found with polycyclic hydrocarbons with short lateral chains, irrespective of their nature (aromatic or naphthenic); compds. with few rings and long lateral chains show lower viscosity temp. coeff. Consequently, elimination of the latter hydrocarbons through far-reach-

ing deparaffination entails a lowering of mobility at low temp. Absence of long lateral chains which screen the rings favors mol. assocn., which is responsible for the strong increase of η at low temp. and its rapid fall at higher temp. Inasmuch as long mols. are more easily oriented in the direction of the flow, mobility at low temp. will be favored by elimination of polycyclic hydrocarbons with short lateral chains. Consequently, distillate oils have a better mobility at low temp. than residual oils even if highly purified, e.g., at 100°, 50°, 0°, and -10°C., a residual oil (Dean and Davis index 98) had η = 1.83, 7.88, 297, and 550°E., a distillate oil (D. and D. 92), η = 1.90, 7.07, 187, and 496°E. On the other hand, paraffin hydrocarbons crystallize at low temp. and thus det. a loss of mobility. Depending on whether the paraffin crystals are dispersed and solvated or interlace to form a lattice, the sharp loss of mobility will occur either above or below the solidification temp. of the oil. Agents (e.g., Parafflow) that lower the f.p. are most effective with distillate oils; oils with a low viscosity index do not change their η appreciably; the same holds for high-index oils with a high initial η (above 2.2°E. at 100°C.). The addn. is particularly effective with oils of medium η (1.5-2.2°E. at 100°C.) and a solidification temp. around 0°C. Addn. of polybutylenes raises η and the viscosity index but does not affect the freezing temp.; this type of addn. is effective with nonparaffin-base oils of low η and low solidification temp. The "universal" addn. agent P-5 is most effective, at temps. below 0°, with low- η oils. In order to obtain motor oils with low η at temps. below 0°, it is essential to use low- η distillate oils from paraffin-base crude oils, to eliminate polycyclic hydrocarbons with short lateral chains and the high-melting paraffin hydrocarbons, and to incorporate preferably an addn. agent of the "universal" type.

N. Thon

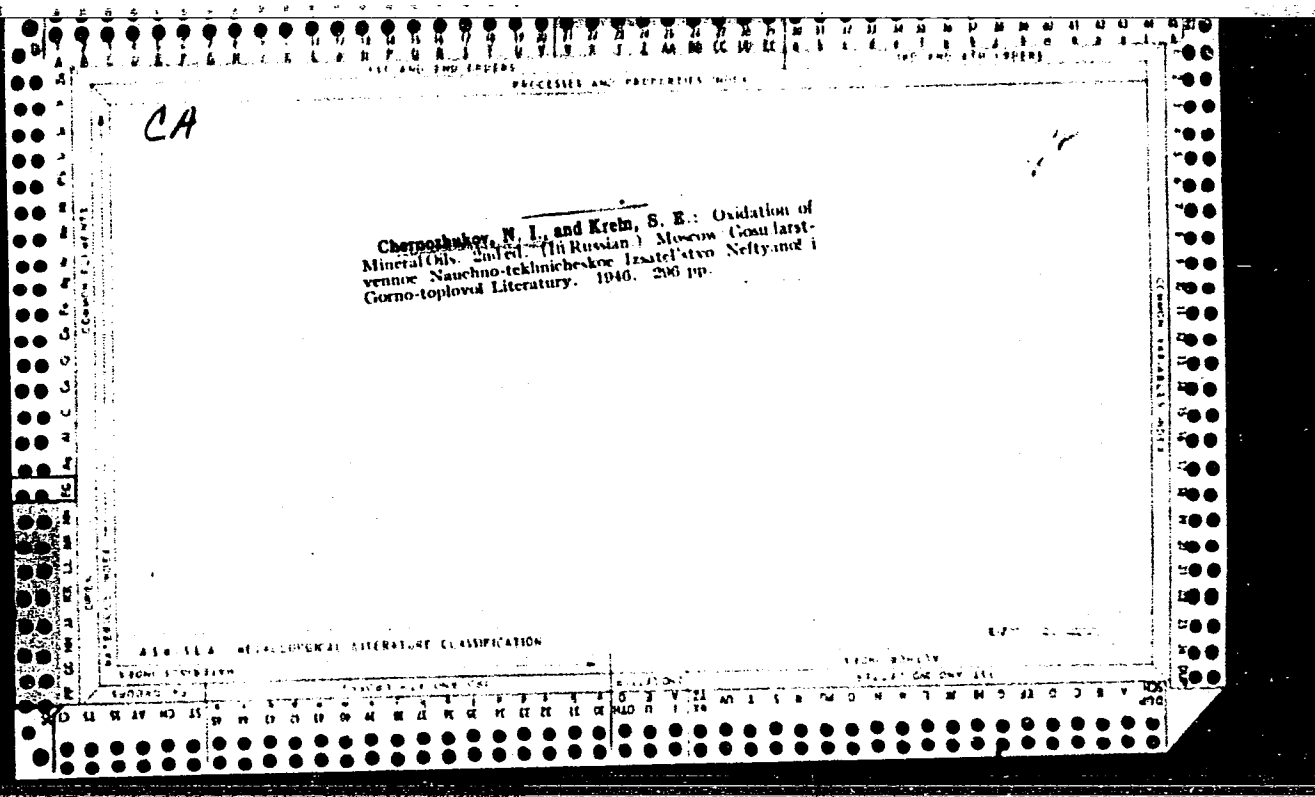
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CHERNOZHUKOV, Nikolai Ivanovich, 1894-

The oxidizability of mineral oils. Izd. 2., ispr. i dop. Moskva, Gos. nauch.-tekhn. izd-vo neftia-noi i gorno-toplivnoi lit-rs, 1946. 290 p. (45-14346)

TP665.C46 1946

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22

Lubricating oil. N. I. Chernozhukov, I. P. Lukashovich, A. V. Klapovskaya, and K. V. Bauman. U.S.S.R. 69,723, Nov. 30, 1947. Oil is treated with an Al silicate catalyst at a temp. above 370° but below the cracking temp. The product is freed of the light fractions by distn. Oil thus treated has a higher index of viscosity and better stability. M. Hirsch

CHERNOZHUKOV, N. I., PROF

PA 9T74

USSR/Oxidation
Oils - Properties

May 1947

"The Influence of Petroleum Asphalt-tar Elements
Upon the Oxidation of Oils," Prof N. I. Chernozhukov, A. A. Luzhetskiy, 6 pp

"Neftyanoye Khozyaystvo" Vol 25, No 5

Comparison of the results of oxidation of paraffin
and asphalt types of oils.

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| 1ST AND 2ND COPIES | |
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| <p>PROCESSES AND PROPERTIES OF OILS</p> <p>The problem of investigating the oxidizability of oils. N. I. Chernozhukov. <i>Nefteprom Khas.</i> 25, No. 8, 45-50 (1947). An attempt is made to obtain data indicating a relationship between the chem. changes resulting from oxidation of a body of oil at relatively low temps. up to 150° and the tendency of the oil to form hard lacquerlike or C deposits during oxidation in a thin layer at high temps. Purified wax in. 34°, purified cerealin, 5 chemically pure hydrocarbons, and purified Parafflow were each tested in two different ways: by the method of Butkov (5-g. sample oxidized with O₂ at 15 atm. and 150° for 3 hrs.) and in the app. of Papok at 200-250° for a period of 40 min. sufficient to produce a film. Data on the content of acids, hydroxy acids, phenols, resins, and asphaltenes formed in each substance in the first series of tests are fairly close to those already known. With respect to oxidation in a thin layer, as indicated by the strength (in kg.) and nature of the resultant film, the hydrocarbons range as follows: (a) α-methylnaphthalene and diphenylmethane are best (0 kg., soft carbene-like); (b) cerealin and Parafflow (5.2 and 1.2, soft or waxlike); triphenylmethane (3.8, semisolid carbene-like); (d) paraffin wax, tricyclopentylbenzene, and acenaphthene are least desirable (from 3.2 to > 7, > 7, and 4.8, resp., hard varnish-like). Thus, those hydrocarbons (d) which form a large amt. of hydroxy acids give a strong varnish film. Aromatic hydrocarbons with short alkyl chains (a), which form phenols acting as inhibitors, give the least objectionable film. Polycyclic aromatics (c) likewise form phenols, but in a thin layer rapidly polymerize to resins. Naphthenes and aromatics with long alkyl chains (b) are quite resistant under ordinary conditions but inferior to short-chain aromatics when oxidized in a thin layer.</p> <p>Bruno C. Metzner</p> | |
| 3RD AND 4TH COPIES | |
| 100 | |

CHERNOZHUKOV, NIKOLAY IVANOVICH

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Khimiya Mineral'nykh Masel (The Chemistry of Mineral Oils, by) N. I.
Chernozhukov, S. E. Kreyn (i) B. V. Losikov. Moskva, Gostoptekhizdat, 1951.
307 p. Illus., Diags., Tables.
Bibliographical Footnotes.

SERDIY, A.G., redaktor; STEPANYANTS, A.K., professor, redaktor; TIKHO-MIROV, A.A., kandidat ekonomicheskikh nauk, redaktor; VINOGRADOV, V.N., redaktor; CHERNOZHUKOV, N.I., professor, redaktor; SHCHER - KACHEV, V.N., professor, redaktor; CHARYGIN, M.M., professor, redaktor; DUNAYEV, F.F., professor, redaktor; KUZMAK, Ye.M., professor, redaktor; MURAV'YEV, I.M., professor, redaktor; GUREVICH, V.M., redaktor; MURATOVA, V.M., redaktor, POLOSINA, A.S., tekhnicheskii redaktor.

[Sixth scientific and technical conference, 1951] Shestaia nauchno-tekhnicheskaya konferentsiya, 1951. Moskva, Gos. nauchno tekhn. izd-vo neftianoi i gorno-toplivnoi lit-ry, 1952, 214 p.
(MLRA 8:10)

1. Moscow. Moskovskiy neftianoy institut. Nauchnoye studencheskoye obshchestvo.

(Petroleum geology)

CHERNOZHUKOV, N. I.

Ochistka nefteproduktov i proizvodstvo spetsial'nykh produktov [The
Treatment of Petroleum Products and the Manufacture of Special Products], 3rd
Edition, Moscow-Leningrad, 1952 (Tekhnologiya nefti [The Technology of Petroleum],
Part 3).

No. 444, 16 Aug 55

SERDIY, A.G., redaktor; TIKHOMIROV, A.A., kandidat ekonomicheskikh nauk, redaktor; STEPANYANTS, A.K., professor, redaktor; VINOGRADOV, V.H. redaktor; CHERNOZHUKOV, N.I., professor, redaktor; ~~SECHETKACHEV~~ V.N., professor, redaktor; CHARYGIN, M.M. professor, redaktor; KUZMAK, Ye.M., professor, redaktor; MURAV'YEV, I.M. professor, redaktor; GUREVICH, V.M., redaktor; MURATOVA, V.M., redaktor; TROFIMOV, A.V., tekhnicheskij redaktor.

[Seventh scientific and technical conference, 1952] Sed'maya nauchno-tekhnicheskaya konferentsiya, 1952. Moskva, Gos.nauchno tekhn.izd-vo neftianoi i gorno-toplivnoi lit-ry, 1953. 171 p.
(MLBA 8:10)

1. Moscow. Moskovskiy neftianoy institut. Nauchnoye studencheskoye obshchestvo.

(Petroleum Geology)

CHERNOZHUKOV, N.I.

The Committee on Stalin Prizes (of the Council of Ministers USSR) in the fields of science and inventions announces that the following scientific works, popular scientific books, and textbooks have been submitted for competition for Stalin Prizes for the years 1952 and 1953. (Sovetskaya Kultura, Moscow, No. 22-40, 20 Feb - 3 Apr 1954)

| <u>Name</u> | <u>Title of Work</u> | <u>Nominated by</u> |
|--------------------|------------------------|----------------------------|
| Chernozhukov, N.I. | "Chemistry of Mineral | Moscow Petroleum Institute |
| Kreyn, S.E. | Oils" (student manual) | Imeni Acad I.M. Gubkin |
| Losikov, B.B. | | |

SO: W-30604, 7 July 1954

CHERNOZHUKOV, N. I.

AID P - 1101

Subject : USSR/Chemistry

Card 1/1 Pub. 78 - 12/21

Authors : Chernozhukov, N. I. and Susanina, O. G.

Title : Physical properties and structure of naphthenic hydrocarbons of oil fractions

Periodical : Neft. khoz., v. 32, #10, 57-61, 0 1954

Abstract : The method of crystallization of naphthenes from white medicinal and perfume oils is described on the basis of which the structure and properties of pure naphthenic hydrocarbons of oil fractions were determined. Five and six-ring naphthenes were separated with this method. Two tables.

Institution : None

Submitted : No date

Moscow Petroleum Inst. in. I.M. Gubkin

CHERNOZHUKOV, N. I.

ZHIGACH, K.F., professor, redaktor; STEPANYANTS, A.K., professor, redaktor; TIKHOMIROV, A.A., kandidat ekonomicheskikh nauk, redaktor; KARAPET'YAN, R.O., kandidat filosoficheskikh nauk, redaktor; CHERNOZHUKOV, N.I., professor; YERSHOV, P.R., redaktor; GUREVICH, V.M., redaktor; MURAV'YEV, I.M., professor, redaktor; SHCHELKA-CHEV, V.N., professor, redaktor; CHARYGIN, M.M., professor, redaktor; DUNAYEV, F.F., professor, redaktor; KUZMAK, Ye.M., professor, redaktor; POLOSINA, A.S., tekhnicheskii redaktor.

[Ninth scientific and technological conference of 1954] Deviataya nauchno-tekhnicheskaya konferentsiya 1954. g. Moskva, Gos. nauchno-tekhn. izd-vo neftianoi i gorno-toplivnoi lit-ry. 1955. 205 p. [Microfilm] (MLRA 8:9)

1. Moscow. Moskovskiy neftianoy institut. Nauchnoye studencheskoye obshchestvo.

(Geology) (Petroleum)

CHERNOZHUKOV, Nikolay Ivanovich; KREYN, Serafin Effaimovich, L'VOVA, L.A.,
vedushchiy redaktor; POLOSINA, A.S., tekhnicheskii redaktor

[Oxidation of mineral oils] Okisliaemost' mineral'nykh masel. 3-e
izd., perer. Moskva, Gos. nauchno-tekhn.izd-vo neftianoi i gorno-
toplivnoi lit-ry, 1955. 371 p. (MLRA 8:7)
(Oxidation) (Mineral oils)

AID P - 3061

Subject : USSR/Chemistry

Card 1/1 Pub. 78 - 15/20

Authors : Chernozhukov, N. I. and L. P. Kazakova

Title : Solid aromatic hydrocarbons of petroleum oil fractions

Periodical : Neft. khoz., v. 33, no. 8, 75-79, Ag 1955

Abstract : The authors report results of laboratory tests with Tuymazy, Surakhany and Tatar crudes in which the presence of solid aromatic hydrocarbons have been found in oil distillation fractions of 390°-500°C. Tables.

Institution : None

Submitted : No date

CHERNOZHUKOV, N.I.

Composition and Properties of the High Molecular (Cont.) 647
 Weight Fraction of Petroleum; Collection of Papers, Moscow, Izd-vo AN SSSR, '58, 370pp*
 PART IV. THE CHEMICAL NATURE OF SOLID PETROLEUM HYDROCARBONS

Chernozhukov, N.I., Kazakova, L.P. Methods for the Separation of Solid Hydrocarbons From Petroleum Oil Fractions and Their Characteristics 203

The article describes a new method for the extraction and separation of various groups of solid hydrocarbons from petroleum oil fractions. A Romashkino crude concentrate was used for the extraction of solid paraffinic, naphthenic, aromatic, and naphthenic-aromatic hydrocarbons. The paraffins constituted only a minor part. Solid aromatics, mainly those which do not form urea complexes, contain a considerable amount of solid sulfur compounds. There are 7 figures, 2 tables, and 1 Soviet reference.

Topchiyev, A.V., Rozenberg, L.M., Terent'yeva, Ye.M., Nechitaylo, N.A. Separation of Petroleum Paraffins into Normal and Isomer Hydrocarbons 208

The temperature ranges for the decomposition of complexes of individual normal paraffins C₁₆ to C₃₂ were determined by means of the differential-thermal analysis. They can be used for the identification of normal paraffins. It was shown that urea is not a selective

Card ~~13~~/22 *2nd Collection of Papers publ. by AU Conf. Jan 56, Moscow.

CHERNYZHUKOV, N.I.; KAZAKOVA, L.P.

Separation methods and the characteristics of solid aromatic
hydrocarbons of petroleum oil fractions. Khim. i tekhn. topl.
no.1:57-61 Ja '56. (MIRA 9:7)
(Hydrocarbons) (Petroleum--Refining)

CHERNOZHUKOV, N. I.

L'vova, A. I., and N. I. Chernozhukov.

"The Problem of Producing Synthetic Lube Oils With Polyalkylene Glycol Base or Its Derivatives"

Problems of Petroleum Production and Petroleum Engineering, Moscow, Neftyanoy institut, Gostoptekhnizdat, 1957, 393pp. (Trudy vyp. 20)
This book is a collection of articles written by professors and faculty members of the Petroleum Inst. in I. M. Gubkin.

CHERNOZHUKOV, N.I.

USSR/Chemical Technology - Chemical Products and Their Application. Treatment of Natural Gases and Petroleum. Motor and Jet Fuels. Lubricants. I-8

Abs Jour : Ref Zhur - Khimiya, No 1, 1958, 2592

Author : Chernozhukov, N.I.

Inst :

Title : The Significance of Chemical Composition of Oils in the Practice of Their Production and Utilization.

Orig Pub : Sb.: Khim. sostav i ekspluatats. svoystava smazochn. masel. M., Gostoptekhizdat, 1957, 5-24

Abstract : On the basis of an analysis of the results of his own experimental work, of the newly secured data, and also of a number of contributions made by other investigators, the author draws the conclusion that addition of a sufficient amount of aromatic hydrocarbons to naphthenic hydrocarbons protects the latter from oxidation; most effective are the polycyclic aromatic hydrocarbons containing no side chains

Card 1/2

USSR/Chemical Technology -- Chemical Products and Their I-8
Application. Treatment of Natural Gases and Petroleum.
Motor and Jet Fuels. Lubricants.

Abs Jour : Ref Zhur - Knimiya, No 1, 1958, 2592

or short side chains. Tars used in small amounts also protect naphthenes from oxidations. Moreover, polycyclic aromatic hydrocarbons are effective inhibitors of processes of gum formation and corrosion. In conclusion of his paper the author recommends various procedures for improving the quality of oils produced from different raw materials; in particular, it is proposed to select such technological operating conditions of purification, under which aromatic hydrocarbons and tars are left in the oil, in the necessary concentrations, and also to blend oils that are derived from adequately purified naphthenic and aromatized raw materials.

Card 2/2

CHEROKEE

1985-1986

Moscow Petroleum Inst. in Acad. I.M. Gubkin

CHERNOZHUKOV, N.I.
AUTHORS: Susanina, O.G. and Chernozhukov, N.I.

65-10-4/13

TITLE: An Investigation of the Solubility of the Individual Groups of Hydrocarbons of Oil Fractions in Acetone (Issledovaniye rastvorimosti v atsetone otchel'nykh grupp uglevodorodov maslyanykh fraktsiy)

PERIODICAL: Khimiya i Tekhnologiya Topliva i Masel, 1957, No.10, pp. 14 - 21 (USSR)

ABSTRACT: The problem of how the individual groups of hydrocarbons in oils can be separated from a polar solvent within a wide range of temperatures was investigated. Two types of raw material were taken for the experiments: a distillate auto oil 10 from a mixture of 10 crude oils from Baku and a distillate of the Surakhansk paraffinic crude. Physico-chemical properties and group composition of the materials are given in Tables 1 and 2, respectively. Acetone was chosen as a solvent and the experiments were carried out in the temperature range - 70 °C to the critical temperature of acetone. The experimental results are given in Tables 3 and 4 and Figs. 1-7. It was established that on decreasing the temperature of acetone solutions of oils, paraffins, naphthenes and aromatic hydrocarbons with a large number of carbon atoms in the side chains crystallise with the formation of saturated solutions in acetone. In respect of the

Card 1/3

65-10-4/13

An Investigation of the Solubility of the Individual Groups of Hydrocarbons of Oil Fractions in Acetone

above groups of hydrocarbons acetone, similarly to non-polar solvents, shows dispersing properties. The main part of aromatic hydrocarbons and resins is strongly retained in acetone solutions even at very low temperatures. It is obvious that these hydrocarbons and resins are combined with the solvent due to the influence of its polar properties. In the temperature range near to the critical temperature of acetone, the precipitation of high molecular hydrocarbons and resins takes place, similarly to their precipitations from propane and other non-polar solvents. The polar properties of acetone appear in a considerable narrowing, in comparison with propane, of the temperature range in which the separation of the second phase (asphalts) takes place. The method of fractional crystallisation of hydrocarbons from solutions of oils in acetone together with chromatographic separation of fractions isolated on silicagel and activated carbon can be used for the analysis of the structure of hydrocarbons in oils. De-paraffinisation of oils at low temperatures in acetone-toluole solutions leads to the separation from the solution of a considerable amount of valuable low solidifying naphthenic and aromatic hydrocarbons. A mixture of 25% of

Card2/3

65-10-4/13

An Investigation of the Solubility of the Individual Groups of Hydrocarbons of Oil Fractions in Acetone

acetone and 75% of toluole separates the above hydrocarbons to the ssme extent as pure methyl ethylketone. At very low temperatures of de-paraffinisation, a mixture of 25% of methylethylketone and 75% of toluole does not separate valuable hydrocarbons when a high excess (in respect of oil) of solvent is present. There are 7 figures, 4 tables and 2 Russian references.

ASSOCIATION: Moscow Petroleum Institute imeni Academician I.M.Gubkin
(Moskovskiy neftyanoy institut im. Akad. I.M. Gubkina)

AVAILABLE: Library of Congress

Card 3/3

L'VOVA, A.I., kand.tekhn.nauk; CHERNOZHUKOV, N.I., prof., doktor tekhn.
nauk

Production of synthetic lubricants from polyalkylene glycols
and their derivatives. Trudy MNI no.20:354-392 '57.
(MIRA 13:5)
(Glycols) (Lubrication and lubricants)

CHERNOZHUKOV N.I.

KUZMAK, Ye.M., prof. doktor tekhn. nauk, red.; TARAN, V.D., prof.; doktor tekhn. nauk, red.; ZHIGACHEV, K.F., prof., red.; MURAV'YEV, I.M., prof., red.; TIKHOMIROV, A.A., kand. ekon. nauk, red.; YEGOROV, V.I., kand. ekon. nauk, red.; CHARYGIN, M.M., prof., red.; DUNAYEV, F.F., prof., red.; CHERNOZHUKOV, N.I., prof., red.; CHARNYY, I.A., prof., red.; PANCHENKOV, G.M., prof., red.; DAKHNOV, V.N., prof.; NAMETKIN, N.S., doktor khim. nauk, red.; ALMAZOV, N.A., dots., VINOGRADOV, V.N., kand. tekhn. nauk, red.; BIRYUKOV, V.I., kand. tekhn. nauk, red.; TAGIYEV, E.I., red.; GUREVICH, V.M., red.; GOR'KOVA, A.A., ved. red.; FEDOTOVA, I.G., tekhn. red.

[Proceedings of the conference of technical schools on the problems of new equipment for the petroleum industry] Mezhevuzovskoe soveshchanie po voprosam novoi tekhniki v neftiatoi promyshlennosti. 1958. materialy... Moskva, Gos. nauchno-tekhn. izd-vo nef. i gorno-toplivnoi lit-ry. Vol. 3. [Manufacture of petroleum industry equipment] Neftiatnoe mashinostroenie. 1958. 222 p. (MIRA 11:11)
(Petroleum industry--Equipment and supplies)

~~CHERNOMIR~~ CHERNOMIR, N.I., prof., doktor tekhn.nauk, red.; ZHIGACH, K.F., prof.,
otvetstvennyy red.; MURAV'YEV, I.M., prof., red.; TIKHOMIROV, A.A.,
kand.ekon.nauk, red.; YEGOROV, V.I., kand.ekon.nauk, red.; CHARYGIN,
M.M., prof., red.; DUNAYEV, F.F., prof., red.; KUZMAK, Ye.M., prof.,
red.; CHARNYY, I.A., prof., red.; PANCHENKOV, G.M., prof., red.;
DAKHNOV, V.N., prof., red.; NAMETKIN, N.S., doktor khim.nauk, red.;
ALMAZOV, N.A., dots., red.; VINOGRADOV, V.N., kand.tekhn.nauk, red.;
BIRYUKOV, V.I., kand.tekhn.nauk, red.; TAGIYEV, E.I., red.; GUREVICH,
V.M., red.; ZAMARAYEVA, K.M., vedushchiy red.; MUKHINA, E.A., tekhn.
red.

[Materials of the Interuniversity Conference on Problems of New
Practices in the Petroleum Industry] Materialy mezhvuzovskogo
soveshchaniya po voprosam novoy tekhniki v neftyanoy promyshlen-
nosti. Moskva, Gos. nauchno-tekhn. izd-vo neft. i gorno-toplivnoi
lit-ry. Vol.2. [Petroleum refining] Pererabotka nefti. 1958. 289 p.
(MIRA 11:6)

1. Mezhvuzovskoye soveshchaniye po voprosam novoy tekhniki v
neftyanoy promyshlennosti. 1956.
(Petroleum--Refining)

ZHIGACH, K.F., prof, red.; MURAV'YEV, I.M., prof. doktor tekhn.nauk, red.;
 TIKHOMIROV, A.A., kand.ekon.nauk, red.; YEGOROV, V.I., kand.ekon.
 nauk, red.; CHARYGIN, M.M., prof., red.; DUNAYEV, F.F., prof., red.;
CHERNOZHUKOV, N.I., prof., red.; KUZMAK, Ye.M., prof., red.;
 CHARNYY, I.A., prof., red.; PANCHENKOV, G.M., prof., red.; DAKHNOV,
 V.N., prof, doktor geologg-mineralogicheskikh nauk, red.; NAMEPKIN,
 N.S., doktor khim.nauk, red.; ALMAZOV, N.A., dots., red.; VINOGRADOV,
 V.N., kand.tekhn.nauk, red.; BIRYUKOV, V.I., kand.tekhn.nauk, red.;
 TAGIYEV, E.I., red.; GUREVICH, V.M., red.; DOBRYNINA, N.P., vedushchiy
 red.; MUKHINA, E.A., tekhn.red.

[Proceedings of an interschool conference on problems of new techniques
 in the petroleum industry] Materialy Mezhevuzovskogo soveshchaniya
 po voprosam novoy tekhniki v neftyanoy promyshlennosti. Moskva, Gos.
 nauchno-tekhn.izd-vo nef. i gorno-toplivnoi lit-ry. Vo.1.
 [Prospecting and exploitation of oil and gas fields] Razvedka i
 razrabotka neftyanykh i gazovykh mestorozhdenii. 1958. 311 p.
 (MIRA 11:4)

1. Mezhevuzovskoye soveshchaniye po voprosam novoy tekhniki v
 neftyanoy promyshlennosti.

(Petroleum engineering) (Gas, Natural--Geology)

BRUSYANTSEV, Nikolay Vasil'yevich, CHERNOZHUKOV, N.I., doktor tekhn.nauk, retsenzent, DAVYDOV, P.I., kand.tekhn.nauk, retsenzent, GULIN, Ye.I. kand.tekhn.nauk, retsenzent, DEMCHENKO, V.S., kand.tekhn.nauk, retsenzent, SHTEPAN, M.G., kand.tekhn.nauk, retsenzent, PAPOK, K.K. doktor tekhn.nauk, red.; NAKHIMSON, V.A., red.izd-va., UVAROVA, A.F., tekhn.red.

[Motor vehicle and tractor fuels and lubricants]. Avtotraktornye topliva i smazochnye materialy. Moskva, Gos. nauchno-tekhn. izd-vo mashinostroit. lit-ry, 1958 . 340 p. (MIRA 11:9)

(Motor fuels)

(Lubrication and lubricants)

CHERNOZHUKOV, N.I.

SOV/81-59-15-54823

Translation from: Referativnyy zhurnal. Khimiya, 1959, No 15, p 422 (USSR)

AUTHORS: Chernozhukov, N.I., Kazakova, L.P.

TITLE: Methods for Separating Solid Hydrocarbons From Oil Fractions of Petroleum and Their Characteristics

PERIODICAL: V sb.: Sostav i svoystva vysokomolekul. chasti nefi. Moscow, AN SSSR, 1958, pp 203 - 207

ABSTRACT: A method has been developed for the separation and the characterization of solid aromatic, naphthene and paraffin hydrocarbons which are present in high-boiling petroleum fractions. The method includes the preliminary chromatographic devision of the initial product (deasphalted concentrate of Romashkino oil) into the naphthene-paraffin fraction and the fractions of aromatic hydrocarbons desorbed by ksoctane and then by benzene. Each fraction was frozen out at -40°C in a solvent consisting of 40% acetone and 60% toluene taken in a ratio of 4:1 to the fraction. The separated solid hydrocarbons in a solution of methylethylketone were divided by means of urea into hydrocarbons, forming and not forming complexes with it. It has been established that the solid hydrocarbons separated from

Card 1/2

SOV/81-59-15-54823

Methods for Separating Solid Hydrocarbons From Oil Fractions of Petroleum and Their Characteristics

the concentrate are paraffins of normal and iso-structure, mono- and polycyclic naphthenes with long chains of normal and iso-structure, aromatic hydrocarbons containing from one to three benzene rings with long chains of normal and iso-structure and naphthene-aromatic hydrocarbons containing on the average one aromatic and two naphthene rings. Aromatic hydrocarbons with side chains of ramified structure contain in their composition a considerable admixture of solid S-compounds.

B. Englin

Card 2/2

KUZ'MIN, S.T.; CHERNOZHUKOV, N.I.

Using carbamide for removing paraffin from lubricating oils.
Izv. vys. ucheb. zav.; neft' i gaz no.1:111-117 '58. (MIRA 11:8)

1. Moskovskiy neftyanoy institut im. akad. I.M. Gubkina.
(Urea) (Paraffins) (Lubrication and lubricants)

SOV/65-58-10-3/15

AUTHORS: Kuz'min, S. T. and Chernozhukov, N. I.

TITLE: The Deparaffination of Lubricating Oils with Carbamide
(K voprosu deparafinizatsii smazochnykh masel karbamidom)

PERIODICAL: Khimiya i Tekhnologiya Topliv i Masel, 1958, Nr 10,
pp 12 - 16 (USSR)

ABSTRACT: By the interaction of carbamide with organic compounds, it is possible to separate normal paraffins from mixtures. The formation of complexes is due to the adsorption of paraffin hydrocarbons by the carbamide crystals. The authors investigated the influence of various solvents (methyl ethyl ketone, petroleum, alkylate, acetic acid, isopropyl alcohol, benzene and acetone) and of additives on the deparaffination of lubricants. Most satisfactory results were obtained when using methyl ethyl ketone and isopropyl alcohol. Methanol and normal heptane were most suitable as activators. The quality of the raw material influences the deparaffination process and very good results were obtained when using light oily fractions. Two treatments with carbamide suffice to separate the solid

Card 1/3

SOV/65-58-10-3/15

The Deparaffination of Lubricating Oils with Carbamide

hydrocarbons. The experiments were carried out on fractions boiling between 350 and 500°C of Tuymazy petroleum when using isopropyl alcohol as solvent. The deparaffination process consists of the following stages: the reaction between the carbamide and the distillate; the separation of the complex by filtration; the washing of the residue with the solvent; the decomposition of the complex and the separation of the solvent by distillation. 5 to 20% methanol, water and ethylene glycol were used as additives (Figs. 1, 2 and 3). The best results were achieved when using 9 to 10% methanol and 5 to 10% ethylene glycol. The influence of process temperatures was investigated between 60 to 25°C. The interaction of carbamide with solid hydrocarbons starts at temperatures above 40°C, and complex formation occurs at an initial temperature of 55°C; between 20 and 40°C deparaffination is minimal. Tests were also carried out when using 50 to 175% carbamide, and the separation of solid hydrocarbons was most satisfactory when using 100% carbamide. The length of the experiments varied between 10 to 90 minutes and the optimum time of mixing found to be 30 minutes. The degree of purity of the paraffin depends on the amount

Card 2/3

SOV/65-58-10-3/15

The Deparaffination of Lubricating Oils with Carbamide

of the solvent used and on the number of washings. 98% pure paraffin was obtained when washing the samples twice and using 50% of the solvent. The authors also attempted to improve the solidification points of the lubricants by using 1% of the depressant AzNII (see Table). In this way the solidification points can be lowered to -25 to -30°C. The method of extractive crystallisation makes it possible to manufacture transformer oils with solidification points of -15 to -50°C and oily distillates of motor oils with solidification points of -9 to -10°C. There are 3 Figures, 1 Table and 13 References: 4 Soviet, 8 English and 1 German.

ASSOCIATION:MNI im. Gubkina (MNI im. Gubkin)

Card 3/3

KUZ'MIN, S.T.; CHERNOZHUKOV, N.I.

Dewaxing of lubricating oils with carbamide in the presence of
isopropyl alcohol. Trudy MNI no.23:62-69 '58. (MIRA 12:1)
(Lubrication and lubricants) (Urea) (Isopropyl alcohol)

CHERNOZHUKOV, N.I.; SADCHIKOVA, M.F.

Study of characteristics of aromatic hydrocarbons in oil
fractions. Trudy MNI no.23:70-77 '58. (MIRA 12:1)
(Hydrocarbons--Analysis)

CHERNOSZHUKOV, N.I.; BIKKULOV, A.Z.

Choosing a selective solvent for refining oils obtained from sour
crude. Izv. vys. ucheb. zap. 'neft' i gaz no.2:83-87 '58.
(MIRA 11:8)

1. Moskovskiy neftyanoy institut im. akad. I.M. Gubkina.
(Solvents) (Petroleum--Refining)

SOV/65-58-6-10/13

ADTHORS: Bikkulov, A. Z. and Chernozhukov, N. I.

TITLE: The Use of Furfural for Purifying Oils Based on East Soviet Raw Materials. (Ispol'zovaniye furfurola dlya ochistki masel iz vostochnogo syr'ya).

PERIODICAL: Khimiya i Tekhnologiya Topliv i Masel, 1958, Nr.6. pp. 52 - 57. (USSR).

ABSTRACT: Furfural was used for purifying distilled and de-asphalted residual oils. Investigations were also carried out on determining the influence of the conditions of purification on the changes in the group- and chain-composition of oils and their resistance to oxidation. Distillates from the AVT, Novokuybyshevskiy Plant, were used. The first series of experiments was carried out when keeping the temperatures constant at the head and the base of the column (40° at the base and 60° at the head of the column). The raffinates were deparaffinated in a mixture of acetone:benzene:toluene in a ratio of 1:1:1 at -20°C, and further purified by using a 6% aluminosilicate catalyst at 170°C. Table 1: yield and quality of the obtained products. Anti-corrosive properties of the oils were determined in the DK-2 NAMI apparatus during 25 hours. The influence of the multiple diluent on the composition of oils was calculated from their structural and group composition, and by defining

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Materials.

the group composition by separating with silica gel. The influence of temperature conditions on the yield and quality of products was tested. These experiments were carried out at a constant temperature gradient. Data on the yield and quality of products (Table 2) indicate that an increase in the temperature affects some of the properties of the oils. The viscosity index increases from 78 to 83 at the beginning of the experiment, and then remains practically constant; the stability of the oils decreases. Curves on the dependence of the rate of extraction of various hydrocarbons on the yield of extract - Fig.1; the effect of the consumption of diluent on the yield and viscosity index of raffinates - Fig.2. The oxidation resistance was defined by the VTI method, and conditions for obtaining the most favourable results were determined. Under these conditions the yield of raffinate = 65.5%. Properties of these oils are tabulated. These data show that oils, purified with furfural, have much higher stability to oxidation than oils purified with phenol. Analogous experiments were carried out on de-asphalted concentrates with 24.5 cps at 100°C; coking capacity 1.65% and a solidification point of

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Materials.

44°C. During these tests the temperatures at the head and the bottom of the column were: in the first experiment 75°C and 55°C, in the second 95°C and 75°C, and in the third 115°C and 95°C. Results are given in Table 3. The most stable oils were obtained under the following conditions: temperature at the head of the column = 95°C; at the bottom of the column = 75°C and a ratio of the multiple diluent: raw material = 387%. Under these conditions a 68% yield of oil was obtained. Characteristics of this oil are tabulated. There are 3 Tables and 2 Figures.

ASSOCIATION: MNI im. Gubkina (MNI im. Gubkin).

Card 3/3

KUZ'MIN, S.T.; CHERNOZHUKOV, M.I.

Urea dewaxing of lubricating oils. Khim.i tekhn.topl.i masel 3
no.10:12-16 O '58. (MIRA 11:11)

1. Moskovskiy ordena Trudovogo Krasnogo Znameni neftyanoy institut
im. akademika I.M.Gubkina.
(Lubrication and lubricants) (Paraffins) (Urea)

15(5)

PHASE I BOOK EXPLOITATION

SOV/1948

Chernozhukov, Nikolay Ivanovich, Solomon Efraimovich Kreyn, and
Boris Vital'yevich Losikov

Khimiya mineral'nykh masel (Chemistry of Mineral Lubricating Oils)
2d ed., rev. Moscow, Gostoptekhzdat, 1959. 414 p. 4,000 copies
printed.

Exec. Ed.: L.A. L'vova; Tech. Ed.: A.S. Polosina,

PURPOSE: This book is intended for engineers and scientific personnel engaged in lubricating oil chemistry and technology.

COVERAGE: This is an enlarged and revised edition of the original work of the same title published in 1951. It clarifies the basic problems relating to the nature of lubricating oils, the changes in lubricating oils under operating conditions, and the technology involved under these conditions. It also contains much experimental material on the chemical composition, inner structure, solubility, viscosity, lubricating properties, resistance to

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Chemistry of Mineral Lubricating Oils

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oxidation, scrubbing, dispersing, and corrosive properties of lubricating oils. No personalities are mentioned. Each chapter is accompanied by references.

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| AVAILABLE: Library of Congress | TM/ad 6-22-59 |

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CHERNOZHUKOV, N. I.

11(2,4)

PHASE I BOOK EXPLORATION

507/2556

Moscow, Institut neftekhimicheskoy i gazovoy promyshlennosti.

Problemy nefti i gaza (Oil and Gas Problems) Moscow, Gosoptekhnizdat, 1959.
362 p. (Series: Axi. Trudy, vyp 21) Errata slip inserted. 2,000 copies printed.

Sponsoring Agency: Ministerstvo vysshago obrasovaniya SSSR.

Exec. Ed.: G. F. Morgunov, Tech. Ed.: I. G. Fedotova, Editorial Board:
K. P. Zhigach, Professor (Resp. Ed.), I. M. Kurat'ev, Professor, N. A. Tikhomirov, Candidate of Economic Sciences, V. N. Vinogradov, Candidate of Technical Sciences, M. M. Charygin, Professor, F. F. Dunayev, Professor, I. A. Charyov, Professor, V. N. Dakhov, Professor, G. M. Panchukov, Professor.

PURPOSE: This collection of articles is intended for specialists in the petroleum and gas industry. It will also be of interest to scientific research institutions, teachers and students of vuses.

COVERAGE: This collection of articles reviews problems connected with natural and synthetic gas production. A number of articles are devoted to the study of regional oil- and gas-bearing zones, the crystalline beds underlying the Volga-Ural petroleumiferous region, techniques of the Capitan depression, seismic prospecting, oil well logging, techniques of oil and gas fields, petroleum-bearing formations and their physicochemical characteristics, and petroleum engineering. Other articles deal with gas turbine engines and their possible use in the oil and gas industry, the production of heavy organic catalysis, continuous cooking of heavy petroleum residues, (fluidized bed), the improvement of lube oil production, and the influence of a number of properties of lubricating oil and grease. The book contains a number of photographs, tables, flow sheets, and diagrams, among which those relating to the production and conversion of heavy petroleum residues over a fluidized bed catalyst deserve special attention. References accompany individual articles.

Richman, R. M. Gas Turbine Engines and Prospects of Utilizing Them in Petroleum and Gas Industry

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CHERNOZHUKOV, N.I.; SAMEDOVA, F.I.

Comparative study of lacquer formation of lubricants with additives
and aromatic hydrocarbons. Izv. vys. ucheb. zav.; neft' i gaz 2 no.7:
53-60 '59. (MIRA 12:12)

1. Moskovskiy institut neftekhimicheskoy i gazovoy promyshlennosti
im. akad. I.M. Gubkina i Azerbaydzhanskiy institut nefti i khimii
im. M. Azizbekova.

(Lubrication and lubricants)

CHERNOZHUKOV, N.I.; ROGACHEVA, L.M.

Catalytic refining of oil distillates obtained from petroleums
of "Second Baku". Izv. vys. ucheb. zav.; neft' i gaz 2 no.10:45-51
'59. (MIRA 13:2)

1. Moskovskiy institut neftekhimicheskoy i gazovoy promyshlennosti
im. akad. I.M. Gubkina.
(Second Baku--Petroleum--Refining)

S/081/61/000/002/016/023
A005/A105

Translation from: Referativnyy zhurnal, Khimiya, 1961, No. 2, p. 445, # 2M201

AUTHORS: Chernozhukov, N. I., Lukashevich, P. I., Bikkulov, A. Z., Susanina, O. G., Kazakova, E. P., Sadchikova, M. F., Shchegrova, K. A., Markova, L. M., Kiriya, V. V., Kuz'mina, N. A., Glazov, G.

TITLE: The Solubility of Oil Hydrocarbons in Organic Solvents and Ways of the Oil Production Improvement

PERIODICAL: Tr. Mosk. in-t neftekhim. i gaz. prom-sti, 1959, No. 24, pp. 311-340

TEXT: The authors recommend ways of improvement of the lubricant production. Hydrocarbons of higher molecular weight and higher freezing point are in the first place separated at the fractional crystallization of oil hydrocarbons from their solution in acetone. The solubility of the naphthene and paraffin fractions of oils as well as the solubility of a part of the aromatic hydrocarbons and resins result from the effect of the dispersion forces, and the solubility of the remaining part of aromatic hydrocarbons and resins is connected with the action of polar forces. The increase of the dissolving power of the solvent is a consequence of the increase of both its dipole moment and the non-polar portion

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A005/A105

The Solubility of Oil Hydrocarbons in Organic Solvents and Ways of the Oil
Production Improvement

of its molecule. In both cases, the increase of the dissolving power of the solvent is accompanied with the decrease of its selectivity. There are considered the mechanism of the de-asphaltizing of a petroleum concentrate by propane; the effects of temperature and quantity of furfurole on the course of refining of the oil distillate of the Tuymazy petroleum; the properties of phenol and furfurole. An increase in the quantity of furfurole in the refining makes up the insufficiency in its dispersion properties; hereat, the quantity of aromatic hydrocarbons being to be eliminated sharply increases, as a result of which the viscosity coefficient of the refined product increases more than at increased refining temperature. By the use of phenol, the output of refined products is lower than for the refining by furfurole in consequence of the higher dissolving power of the former. The high dissolving power of phenol leads to super-refining of oils in consequence of which their resistance to oxidation decreases. By the addition of water to phenol, its dissolving power decreases, and the selection properties and the output of refined products increase, whereat its viscosity coefficient inconsiderably decreases. The treatment of a transformer oil distil-

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S/081/61/000/002/016/023
A005/A105

The Solubility of Oil Hydrocarbons in Organic Solvents and Ways of the Oil
Production Improvement

late from sulfurous paraffin-base petroleum by phenol containing 10% water makes it possible to obtain an oil resistant to oxidation and having high susceptibility to antioxidant admixtures. The two-stage deparaffination of wide oil fractions makes it possible to increase the output of oils. An increase of the output of deparaffinized oils and the filtration rate is also attained by the addition of admixtures, in particular, of the depressant A_3H_{11} (AzNII) and oxidized petroleum. ✓

B. E.

Translator's note: This is the full translation of the original Russian abstract.

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ZHIGACH, K.F., prof., otv.red.; MURAV'YEV, I.M., prof., red.; TIKHOMIROV, A.A., kand.ekonom.nauk; red.; VINOGRADOV, V.N., kand.tekhn.nauk, red.; SIDORENKO, N.V., red.; BRENTS, A.D., red.; CHARYGIN, M.M., prof., red.; DUNAYEV, F.F., prof., red.; CHARNTY, I.A., prof., red.; CHERNOZHUKOV, N.I., prof., red.; KUZMAK, Ye.M., prof., red.; DAKHNOV, V.N., prof., red.; PANCHENKOV, G.M., prof., red.; NAMSTKIN, N.S., prof., red.; TAGIYEV, E.I., prof., red.; BIRYUKOV, V.I., kand.tekhn.nauk, red.; YEGOROV, V.I., kand.tekhn.nauk, red.; ALMAZOV, N.A., dotsent, red.; GUREVICH, V.M., red.; ISAYEVA, V.V., vedushchiy red.; POLOSINA, A.S., tekhn.red.

[Development of the gas industry of the U.S.S.R.; from the proceedings of the Interuniversity Scientific Conference on the Problems of the Gas Industry] Mezhevuzovskaya nauchnaya konferentsiya po voprosam gazovoi promyshlennosti. Razvitie gazovoi promyshlennosti SSSR; materialy. Moskva, Gos.nauchno-tekhn.izd-vo nef. i gorno-toplivnoi lit-ry, 1960. 405 p. (MIRA 13:11)

1. Mezhevuzovskaya nauchnaya konferentsiya po voprosam gazovoy promyshlennosti. 2. Glavgaz SSSR (for Brents). 3. Moskovskiy institut neftekhimicheskoi i gazovoi promyshlennosti im. akad.Gubkina (for Charygin, Charnty).

(Gas industry)

CHERNOZHUKOV, N.I.; ROGACHEVA, L.M.

Low temperature catalytic cracking of solid hydrocarbons.
Izv.vys.ucheb.zav.; neft' i gaz 3 no.2:99-106 '60.
(MIRA 13:6)

1. Moskovskiy institut neftekhimicheskoy i gazovoy promyshlennosti
im. akad. I.M. Gubkina.
(Hydrocarbons) (Cracking process)

15.4100

77928

SOV/65-60-3-1/19

AUTHORS: Yatsenkov, Ye. F., Chernozhukov, N. I.

TITLE: Higher n-Paraffins of Bitkovsk and Dolinsk Petroleum

PERIODICAL: Khimiya i tekhnologiya topliv i masel, 1960, Nr 3, pp 1-5 (USSR)

ABSTRACT: The higher n-paraffins of Bitkovsk and Dolinsk petroleum were studied by complex formation and chromatography on carbon. The study consisted of the following steps: Removal of gasoline fraction; precipitation of asphaltenes with a 20-fold amount of petroleum ether; removal of tars by chromatography on silica gel; and step-wise treatment of the obtained paraffin oil with urea. The amount of urea varied with each successive treatment, and it was 1:1; 2:1; 3:1 and 4:1 based on the starting oil fraction. Methanol (20% based on urea) was used as an activator, and chloroform as diluent and washing liquid. The complex formation was done at room temperature. Since the separation of n-paraffins is accompanied by the formation of complexes with other hydrocarbons, the obtained solid paraffins were subjected with repeated treatment with urea followed by dissolving in chloroform. The amount of chloroform was 8.3:1 based on starting

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Higher n-Paraffins of Bitkovsk and
Dolinsk Petroleum

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paraffin oil sample and it was increased by 10% with each successive dissolving. This treatment with urea and chloroform was continued till the mp of the paraffin fraction was constant. The authors succeeded in separating 4 fractions of n-paraffins from each of Bitkovsk (17, 12%) and Dolinsk (20, 12%) petroleum. The chromatography on carbon of these paraffins yielded 200 narrow paraffin fractions. Petroleum ether and benzene were used as eluents. The results are given in Table. The structure of obtained paraffins was confirmed by infrared spectra. There are 2 figures; 1 table; and 10 references, 8 Soviet, 1 German, 1 U.S. The U.S. reference is: Swerh D., Ind. Eng. Chem., 47, 2, 215, 1955.

ASSOCIATION:

Academician Gubkin Moscow Institute of Peoples' Economy and Gas Industry (Moscovskiy institut narodnogo khozyaistva i gazovoy promyshlennosti imeni akad. Gubkina)

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77928 SOV/65-60-3-119

Identification of the paraffin hydrocarbons obtained from oil fraction of Bitkovsk and Dolinsk petroleum.

| A | B | | | | C | | | | | D | | | | |
|-----------------------------------|----------------------|------|-------|-----|----------------------|------|-------|-----|------|--------------|------|-------|-------|------|
| | E n_D^{20} | F | G | H | E n_D^{20} | F | G | H | I | E n_D^{20} | F | G | H | I |
| 1 C ₁₆ H ₃₄ | 1,4352 ²⁰ | 16,5 | 226,4 | 95 | 1,4357 ²⁰ | 16,5 | 227,3 | 95 | 0,18 | 1,4065 | 18,0 | 224,8 | 96,0 | 0,09 |
| 2 C ₁₇ H ₃₆ | 1,4362 ²⁰ | 21,7 | 240,5 | 98 | 1,4369 ²⁰ | 20,4 | 242,1 | 97 | 0,18 | 1,4081 | 22,0 | 242,1 | 97,5 | 0,24 |
| 3 C ₁₈ H ₃₈ | 1,4350 ²⁰ | 28,1 | 254,5 | 100 | 1,4352 ²⁰ | 28,0 | 253,8 | 100 | 0,60 | 1,4111 | 28,3 | 255,0 | 100,0 | 0,44 |
| 4 C ₁₉ H ₄₀ | 1,4330 ⁴⁰ | 32,0 | 268,5 | 102 | 1,4335 ⁴⁰ | 32,0 | 267,5 | 103 | 0,48 | 1,4128 | 32,0 | 266,9 | 102,0 | 0,45 |
| 5 C ₂₀ H ₄₂ | 1,4149 | 37,0 | 282,5 | 105 | 1,4146 | 37,0 | 283,0 | 105 | 0,60 | 1,4150 | 37,0 | 280,9 | 104,5 | 0,53 |
| 6 C ₂₁ H ₄₄ | 1,4160 | 40,3 | 296,6 | 107 | 1,4162 | 40,5 | 297,2 | 107 | 0,18 | 1,4165 | 40,5 | 297,3 | — | 0,54 |
| 7 C ₂₂ H ₄₆ | — | 44,5 | 310,8 | 109 | 1,4177 | 44,5 | 309,7 | 109 | 0,72 | 1,4181 | 44,5 | 312,1 | 110,0 | 0,40 |
| 8 C ₂₃ H ₄₈ | 1,4190 | 47,3 | 324,8 | 112 | 1,4190 | 47,0 | 320,5 | 111 | 0,32 | 1,4190 | 46,9 | 325,0 | 112,0 | 1,03 |
| 9 C ₂₄ H ₅₀ | 1,4205 | 50,7 | 338,6 | 114 | 1,4205 | 49,0 | 340,4 | 113 | 0,33 | 1,4202 | 50,5 | 337,5 | 114,0 | 1,56 |

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77928 SOV/65-60-3-1'19

Identification of the paraffin hydracarbons obtained from oil fraction of Bitkovsk and Dolinsk petroleum.

| A | B | | | | C | | | | | D | | | | |
|-------------------|----------------------|------|-------|-------|----------------------|------|-------|-----|------|----------------------|------|-------|-------|------|
| | $\Sigma \frac{S}{C}$ | L | G | H | $\Sigma \frac{S}{C}$ | L | G | H | I | $\Sigma \frac{S}{C}$ | L | G | H | I |
| 10 $C_{25}H_{52}$ | 1,4202 | 43,3 | 352,7 | 116 | 1,4224 | 53,5 | 351,9 | 115 | 0,02 | 1,4220 | 53,0 | 352,4 | 116,0 | 1,19 |
| 11 $C_{26}H_{54}$ | 1,4252 | 56,2 | 366,7 | 118 | 1,4230 | 56,0 | 365,1 | 117 | 0,41 | 1,4230 | 53,0 | 352,4 | 117,7 | 0,70 |
| 12 $C_{27}H_{56}$ | 1,4345 | 59,5 | 380,7 | 120 | 1,4245 | 60,2 | 383,4 | 119 | 0,44 | 1,4242 | 59,2 | 382,3 | 119,2 | 0,37 |
| 13 $C_{28}H_{58}$ | 1,4248 | 61,3 | 394,7 | 121 | 1,4250 | 61,3 | 391,0 | 121 | 0,34 | 1,4250 | 61,5 | 396,1 | 121,0 | 0,26 |
| 14 $C_{29}H_{60}$ | 1,4285 | 63,9 | 408,8 | 123 | 1,4260 | 62,5 | 406,9 | 123 | 0,38 | 1,4261 | 63,0 | 408,5 | 123,0 | 0,17 |
| 15 $C_{30}H_{62}$ | 1,4266 | 65,9 | 422,8 | 125 | 1,4270 | 65,0 | 420,5 | 125 | 0,21 | 1,4270 | 65,3 | 420,5 | 124,6 | 0,18 |
| 16 $C_{31}H_{64}$ | 1,4278 | 67,3 | 436,8 | 126 | 1,4275 | 68,0 | 430,9 | 126 | 0,25 | — | — | — | — | — |
| 17 $C_{32}H_{66}$ | 1,428 | 70,2 | 450,9 | 127,5 | 1,4278 | 70,0 | 448,0 | 127 | 0,20 | — | — | — | — | — |
| 18 $C_{33}H_{68}$ | 1,429 | 71,8 | 464,9 | — | 1,4290 | 72,0 | 463,2 | 129 | 0,24 | — | — | — | — | — |
| 19 $C_{34}H_{70}$ | 1,4296 | 72,7 | 478,9 | — | 1,4297 | 73,0 | 480,0 | 130 | 0,21 | — | — | — | — | — |
| 20 $C_{35}H_{72}$ | 1,4301 | 74,5 | 492,9 | — | 1,4303 | 75,0 | 495,0 | 131 | 0,13 | — | — | — | — | — |

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